The Builder.

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*Dr. Furtwängler's Investigations on the Parthenon and Erechtheion.**

IN the domain of Greek Archæology the event of the year just completed is unquestionably the publication of Dr. Furtwängler's book on the "master works" of Greek sculpture. The starting-point of the book is the Lemnian Athene of Pheidias, and down to the Apollo Belvidere we have a succession of brilliant suggestions, sometimes amounting to demonstration. Everywhere the protest is raised against the traditional method of repeating the generalisations of Brunn with a few stock illustrations, a method that was almost a fixed tradition in handbooks. Dr. Furtwängler widens the field, includes monuments hitherto unknown or barely noted, and everywhere pursues an inductive method straight from the actual sculptures, observed in the closest detail.

This—the main drift of the book—we must, however, leave unconsidered, and confine ourselves to what is in fact an episode, but for English archæologists one of surpassing interest, *i.e.*, Dr. Furtwängler's discussion of the ancient temples of the Acropolis in direct relation to the interpretation of the Parthenon marbles. In order to get a clear conception of the art of Pheidias we must understand the Parthenon marbles, and these, Dr. Furtwängler asserts, can never be rightly interpreted till the full functions of the Parthenon itself are understood, and the temple is set in its right relation to the other sanctuaries that preceded and followed it.

To do full justice to Dr. Furtwängler's argument we ought perhaps to take it step by step in the historical sequence he follows. We prefer, however, to state at the outset two startling discoveries he claims to have made—discoveries closely interdependent.

First and foremost—and here the discovery amounts to what sounds like a paradox—*the Parthenon is not the temple of Athene Parthenos.*

Second—the *opisthodomos of the Parthenon is not a treasure house of Athene at all, but a separate shrine dedicated to other divinities.*

It has long been known that according to early usage (*i.e.*, in inscriptions dealing with treasury accounts, which begin in 434 B.C.), the name "Parthenon" is applied, not to the whole temple as now, but merely to the back western chamber; the cella which held the actual image of the goddess was known as ὁ νεὼς ὁ ἑκατόμπεδος. Since this point was made clear the question has been often raised, why should this western chamber, which does not communicate in any way with the actual main cella, give its name "Parthenon" to the whole building? Dr. Dörpfeld rightly observed that the name Parthenon did not, and could not, come from the Chryselephantine statue, as this was never officially known as the "Parthenos." The mystery remained, why should this back chamber, always supposed to be a treasury, take its name from a mere popular title of the goddess who dwelt in the perfectly distinct Hecatompedos?

The solution Dr. Furtwängler proposes is that the word "Parthenon" is not taken from the Chryselephantine statue, nor yet from any epithet applied to the goddess. According to the analogy of other similar words—*e.g.*, ὁ προβατών, the sheepfold ὁ γυναικών, the women's part of the house—ὁ Παρθενών means, not the chamber of the maiden, but of the maidens. As in the ordinary house one portion is set apart, specially secluded, for the women, so in the house of the gods, in the temple of Athene called the Hecatompedos, the western chamber is the cultus cella of the Parthenoi.

Parthenoi—maiden goddesses—are not far to seek in the Acropolis,

> Where below Pallas temple-bound
> Agraulos daughters three go round;
> Where thou, O Pan, art piping found,
> Within thy shepherd cave.
>
> Eur., Ion. 492.

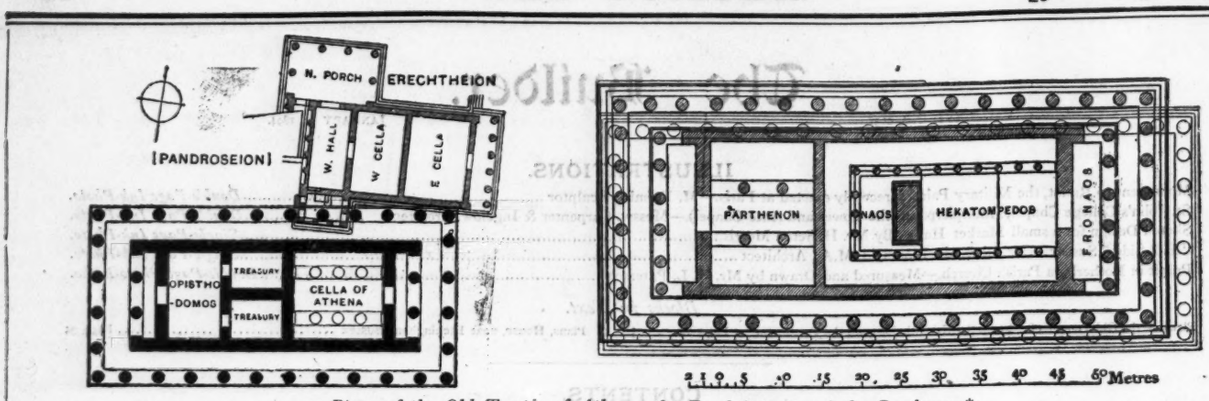
Three daughters of Agraulos, or Cecrops, three daughters of Erechtheus, Charites, nymphs, their regular cultus name was simply "Parthenoi." To them was brought the ancient wineless offering, the νηφάλια. Two of them we know to have had separate sanctuaries, Agraulos and Pandrosos; but when Perikles built his new temple he gathered their scattered worships into one maiden chamber, the opisthodomos of the temple we call the Parthenon—no mere treasury-chamber, but in itself an actual naos or shrine. How easily the name, from denoting the smaller half, should spread to the whole, is obvious enough when we consider that Athene herself, in her later aspect, was the typical maiden.

This interpretation of the opisthodomos of the Parthenon as a separate cultus cella is but a single instance of Dr. Furtwängler's general contention that in the temples of the Acropolis *no separate treasury-chambers exist;* each temple was a treasure-house of all objects of value appertaining to the god and goddess—votive offerings, ritual apparatus and the like. The moneys of the state might be lodged under the guardianship of a deity, but there was no separate chamber set apart as the treasure-house. About temples in the other parts of Greece this question has never been raised. The temple of Apollo at Delos should surely, if any, contain a treasure-chamber; the extant ground-plan shows clearly that none such existed. The temples of Hera and of Zeus at Olympia had no treasure-room; little separate treasuries, of which the ground-plan is still extant, were built to the several states. The idea of these treasure-chambers arose in relation to the Acropolis temples, the Parthenon first and foremost, and later, on its discovery, the same idea was applied to the temple long known as the "old Athene temple." In both these cases the ground-plan is substantially the same—*i.e.*, we have not only a cella with pronaos, but a second cella facing west, back-to-back with the first. It was long thought that in the case of the Parthenon two doors led from the east to the west cella. Dr. Dörpfeld has conclusively proved that these doors are of Byzantine date, and that in classical days no intercommunication existed. What, then, was the object of the western cella? If a treasure-house, why was it thus cut off?

Dr. Furtwängler's answer is that temples with this ground-plan with the western cella as well as the eastern have invariably a double dedication, the cella to the east built for the god and goddess, that to the west for a hero or some subordinate divinity.

This brings us to the question of the "old Athene temple"—a misnomer, as will be seen—and its relation to the Erechtheion

* Meisterwerke der Griechischen Plastik, Kunstgeschichtliche Unter-suchungen von Adolf Furtwängler, mit 140 Texbildern and 32 Lichtdrück tabeln in Mappe. (Leipzig, Berlin, 1893: Giesecke & Devrient.)



*Plans of the Old Temple of Athene, the Erechtheion, and the Parthenon.**

in fact, to the whole sequence of cults and sanctuaries on the Acropolis.

Even after the discovery of the "old Athene temple," and perhaps owing to the name thus hypothetically attached, it has all along been assumed that close at hand, somewhere beneath the present Erechtheion, there existed an earlier Erechtheion. No traces of any such building have been discovered, still they may have disappeared. The current view is that the "old Athene Temple" preceded and was superseded by the Parthenon, and that an old Erechtheion preceded, and in like manner was superseded by, the present building. Dr. Furtwängler revolutionises the whole situation. The "old Athene temple," with its two cellas back-to-back, belonged not to Athene alone, but, as his general view requires, to two divinities, Athene and Erechtheus. Moreover, it was primarily the house of Erechtheus into which Athene entered, and in Homer's day (or rather in the time when the interpolations in question were made, Iliad II. 546, and Od. vi. 80, 781) it bore the name of Erechtheus. It was, in fact, the old Erechtheion in which, as in the new building, Athene occupied the eastern cella. Herodotos fits in equally well; his temple of Erechtheus (viii. 55) is but a special name for the sanctuary, which he elsewhere calls *τὸ μεγαρον* and *τὸ ἱρόν*. He knows but of one great cultus place; a portion of this (*i.e.*, the eastern cella) he specialises as *ἄδυτον ἧς θεοῦ* (v. 72). In the sixth century, be it in the Homer interpolations or in Herodotos, we have the picture of a joint worship, a conjoint sanctuary. The masonry left in the extant ground-plan agrees well with this view; the substructure of the colonnade, acknowledged to be substantially later than the naos itself, dates back to Peisistratos, or possibly Hippias. The naos must recede considerably. Below this naos are remains of a still earlier structure. This must date back into the dark interval between the Mycenæ period and the beginning of actual history.

Yet another point. Given that the "Old Athene Temple" was in effect an old Erechtheion, then we may compare it with the new Erechtheion and see what light is thrown thereby, both on the structure and meaning of both.

Few things have remained more puzzling and unsatisfactory than the ground-plan of the Erechtheion, especially when taken in connexion with the account by Pausanias, but taken in relation with its predecessor some important points become at once clear. The Erechtheion is divided into three chambers—the cella, presumably of Athene, to the east—and a larger cella to the west, itself divided into two chambers. Exactly this same peculiarity marks the old temple—a small cella to the east—for Athene, a larger cella westward, itself divided into two chambers communicating with each other. One of these chambers is again subdivided, and here the narrative of Pausanias comes in to help.

Just as he is about to note the well of sea water, Pausanias make the remark that the building is divided into two compartments (*διπλοῦν γὰρ ἐστι τὸ οἴκημα* (I. 26, 5). This doubleness of the building has always been a crux; two stories have been suggested, but for this there is no architectural evidence; the difficulty finds an easy solution if the new Erechtheion is based on the plan of the old temple, with its exceptional double division of the innermost western chamber.

The further question arises, what was the object in both temples of this division. Dr. Dörpfeld thinks that the two small chambers of the old temple are treasuries — the *οἰκήματα* of the famous Hecatompedon inscription (*Δελτίον*, 1890-92).* Dr. Furtwängler, relying on his general proposition that no special treasure-chambers existed, and, further on his theory that the Erechtheion is, in plan, a restoration of the old temple, sees, in the small chambers, separate cultus-cellas, divided because belonging to different divinities. In a word, both Erechtheion and old temple give their smaller eastern cellas to Athene, and their larger and completely divided western cellas to Poseidon, Erechtheus, and cognate divinities, the northern small chamber to Poseidon Erechtheus himself, the southern one to Hephaestos and Butes, the westernmost undivided chamber to Cecrops. The full force of this argument can only be appreciated by examining with Dr. Furtwängler the Erechtheion inscriptions, which space does not allow us to do here.

We are now in a position to take up the sequence of cults and the temple arrangements depending on them in accordance with Dr. Furtwängler's view. Up to 480 B.C.—*i.e.*, when the Acropolis was sacked by the Persians—there was one, and one temple only, *i.e.*, the old temple sacred in the main to Erechtheus and Athene, called sometime *τό ἱρὸν*, some the *Ἐρεχθέτος νηός*, sometimes *τό μέγαρον*, according as the whole or part is mentioned. In and about the Erechtheus portion, that is, within the sacred precinct, were worshipped Cecrops and his daughters, Butes, and possibly Hephaestos; also within the precinct, though not within the temple, were the sacred tokens, the spring, the trident-mark, the olive-tree.

After the Persian invasion the sanctuary had to be rebuilt. What was done by way of restoration of the old temple for immediate need cannot be known, but Dr. Dörpfeld and Dr. Furtwängler agree that the colonnade was never restored, and this for an obvious reason: some bold revolutionary spirit proposed to move the centre of worship to the southern portion of the hill. No reasonable deity objected to this, if only the proper propitiatory sacrifices were offered. Here comes in the question of the foundations that lie below the present Parthenon, those usually, though according to Dr. Furtwängler incorrectly, called Cimonian. It has been agreed on all hands that these foundations belong to a temple begun soon after 480 B.C., and obviously intended to supplant the old temple, but actually never completed.

The plan of this new uncompleted temple cannot be accurately restored, but we know it to have been similar in the main to the Parthenon. In the Parthenon the idea was to have the east cella in itself a *ἑκατόμπεδος νεώς* the same size as the whole old temple. The *ἑκατόμπεδον*, the incompleted Parthenon, is larger than the present building by just the length of the small chambers in the west cella of the old temple. It may be presumed, therefore, that the uncompleted temple had three chambers; in a word, that its ground plan was only an enlargement of the old temple, and was calculated to include the cults of Erechtheus and Cecrops which fell away in the Parthenon.

An important question is, who began the uncompleted temple, and when? Its foundations have usually been brought into connexion with the south wall of the Acropolis, and through this with Cimon. We have Plutarch's testimony that this south wall was built by Cimon, and immediately after the battle of Eurymedon; but no mention—in an apparently complete list of Cimon's improvements—is made of a new Athene temple. Such an omission is scarcely conceivable. Moreover, so bold an innovation as the transplantation of the temple and cult to a new site was little in the manner of Cimon, but appropriate to the statesman to whom Dr. Furtwängler assigns it — *i.e.*, Themistocles. Another point—if Themistocles began the temple, the fact that the building was relinquished in so early a stage is easily explained by the fall of that statesman, by Aristeides going over to Cimon's party, and the growing influence of the conservative party generally.

And here we note one of the most interesting points in Dr. Furtwängler's view: he brings matters religious into direct relation with the action of political parties. To us, nowadays, the building of churches is not exactly a party matter; but to the Greeks, intimately fused as were their social, political, and religious relations, a party policy, and the rise or fall of a cult might, *à priori*, be expected to be interdependent. Athene watched over the forward party; the conservatives clung to the ancient Erechtheus cult, and, above all, to its actual *locale*. If the daring statesman, Themistocles, moved Athene and her worship to the south part of the hill, he severed many bonds, though he dared not cut her loose from Erechtheus. When Cimon came in he gave his mind to the strengthening and beautifying of the city; he sought to make the Acropolis a fortress, but he left the innovating foundations of the new temple to lie untouched—was it likely he would complete a work begun by a political enemy?

It was not till 447 B.C. that, under somewhat altered conditions, the idea of a new temple could be again revived. The Persian War was given up; Pericles desired external peace as the necessary condition for developing internal prosperity and splendour. Rescued from ruinous war expenses, he saw in the tribute of the allies the necessary material means.

* From plans in "Topography and Monuments of Ancient Athens" (Macmillan & Co.), by Miss Harrison and Mrs. Verrall. The plans are reduced to approximately the same scale.

* Full references to all the inscriptions bearing on this question, as well as to the friendly controversy between Mr. Penrose and Dr. Dörpfeld in the matter of the "old Athene temple and the Parthenon," will be found in "Mythology and Monuments of Ancient Athens" (Harrison and Verrall), where the argument is stated, with plans, &c., for the use of English readers.

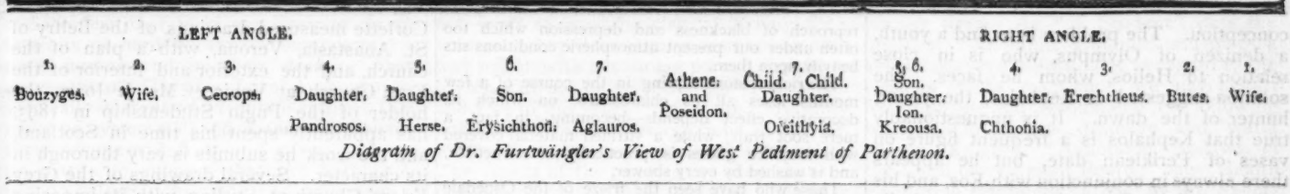


Diagram of Dr. Furtwängler's View of West Pediment of Parthenon.

In the Parthenon the Periclean policy found expression. It differed from the incompleted temple in two points—the east cella in the Parthenon was made broader to accommodate the chryselephantine image, and the two small chambers of the western cella fell away. With them went the worship of Erechtheus—*i.e.*, so far as the new temple was concerned; his cult, no doubt, went on uninterrupted in the old temple; but Athene was now self-sufficing, and stood alone without her old hero-king; but in the western chamber were gathered together, as has been seen, the Parthenoi of the Acropolis; they possibly, because regarded as handmaidens of the goddess, were, in the new temple, the sole survivors of the ancient Erechtheion cult. So far so well, as long as Pericles, of the family of the Bouzygæ, the ancient priesthood sacred to Athene, was in power—he, with his forward policy, but with the swing of the pendulum the conservative reaction set in, headed, this time, by a man whose piety bordered on superstition. To him—to Nikias, according to Dr. Furtwängler—is due the building of the Erechtheion. To the conservative party the Parthenon could never be a satisfactory temple. It was interpenetrated by innovations. Back to the old site, back to the old cults, was the cry now, and, exactly replacing the old Hecatompedon, only with a greater exactitude, actually over the ancient tokens of the well and the trident-mark, suffering any architectural inconvenience for conservatism's sake, rose the Erechtheion. Most splendid victory of all, it kept within its walls the ancient agalma of Athene, once destined, no doubt, to be translated to the new Parthenon.

We turn next to the question of the interpretation of the Parthenon marbles viewed in the new light thrown on the relation of the several temples. And here Dr. Furtwängler returns again and again to the older interpretation, but on perfectly new grounds.

To begin with the frieze of the cella—the crux of which has always been the interpretation of the central slabs—the old view was that in the group of priest and boy we have the presentation of the peplos, while the priestess and maidens represent kanephoroi or diphrophoroi depositing their burdens. The newer view was that here we have no presentation of the peplos at all, but simply the action of the chief priests disrobing and giving his himation to an attendant boy. Now, the chief objection to the old view is that a group of supreme ritual importance—*i.e.*, the presentation of the peplos—was balanced by a quite secondary matter—*i.e.*, the bringing of seats, diphroi, for the celebrants. Everyone who appreciated the spirit of balance and symmetry, as well of subject as of composition, that characterises Pheidian art, felt the objection to be insuperable. Dr. Furtwängler keeps to the old peplos interpretation, but gives to the maidens carrying diphroi a perfectly new and, *quâ* balance, adequate value. They are bringing seats not for priests or attendants, but for the Olympian gods themselves. Athene is hostess, to her is offered the Peplos, but the Panathenaic festival is a *synoikia* of the gods, as it is a *synoikia* of the Hellenic people, and in token of this the seats are offered to the priestess, who will set them for the august guests at the banquet. It is a *Theoxenia*. The guests are the twelve Olympians depicted outside the temple, the twelve who had an altar in the agora. In early days men and gods sat at the banquet. It was only later they reclined. Accordingly here they use *καθέδραι*. The custom of these *θεοξένια* elsewhere is, of course, widely known. Stools and thrones were frequent votive offerings; marble copies of such thrones dedicated to Nemesis and Themis came to light at Rhamnus. The great throne at Amyclæ had several subordinate seats for less divine guests. Moreover, there is sufficient evidence, apart from the frieze, that such was the custom in the cult of Athene on the Acropolis. In an inscription a priestess is praised for her *κοσμησις τῆς τραπέζης* ("arrangement of the table"). Two of her attendants are called *κοσμώ* and *τραπεζώ*. Oddly enough, Hesychius tells us that at the Panatheneia it was the custom to make a little couch entirely of flowers.

Dr. Furtwängler calls attention to a small but interesting point which has never, we think, been noted before. The second of the two maidens looks back; that, in the parlance of Greek sculpture, means that she is not the last—she expects others, her fellows, to follow. Had she been final, she would have looked towards the priestess—in a word, the two stand for twelve, who are bringing twelve seats for the twelve Olympians.

Dr. Furtwängler claims, then, to have established the old conservative view that the presentation of the peplos was depicted in the central slab, but since the peplos was, of course, offered not to the chryselephantine statue, but to the old wooden image, it follows that Pheidias, when he set up the frieze, expected the old image to be transferred from the old temple to the Parthenon. It never was transferred, that we know, and the reason was that, as has been seen, a conservative reaction set in under Nikias; the Erechtheion was built, and the conservatives baulked Pheidias at the last moment, and kept the old image on the north side. The frieze remains, like the altered plan of the Propylæa, a monument of his discomfiture. It was these same reactionaries, no doubt, was raised against him the charge of impiety and peculation in the matter of this new chryselephantine Athene of the Parthenon, a statue odious to their principles and party.

The next point is the interpretation of the sculptures of the western pediment—and it is here especially that Dr. Furtwängler's view as to the double character of the temple throws light on its sculptured decoration. The western half, it will be remembered, he holds to be the sanctuary of the Parthenoi, the daughters of Cecrops and Erechtheus, and this at once explains the problematic throng of women and children figures, that have so far always puzzled commentators on the west pediment.

Dr. Furtwängler bases his arrangement of the composition, as every one nowadays must, in the main on Bruno Sauer's examination of the attachment marks. The "Anonymous" he rules out of court as being merely a careless copy of Carrey's drawings. The centre group, he holds, contains no idea of fight, scarcely of rivalry, for Athene and Poseidon have a joint sanctuary on the Acropolis. It is simply the joint claim, the claim, as it were, of the two great Olympians on the Acropolis, where both have planted their symbols, and this in the presence of the astonished denizens of the hill. It is in the interpretation of these side spectators that Dr. Furtwängler shows the greatest originality. The root and ground of misunderstanding has been, he holds, error as regards the reclining angle-figures. They are not river gods. The personification of rivers and mountains in sculpture is post-Pheidian; moreover—and this is the strongest argument—the base of the pediment indicates rocky ground. This must be the Acropolis. and, *a fortiori*, all the figures represented are dwellers on the Acropolis.

About one figure there are now no two opinions. The man resting on the snake (third from the left angle) is Cecrops. Close to him, towards the centre, are three women figures, a boy between the last two. These can scarcely be other than the three daughters of Cecrops—Pandrosos, who was faithful, clinging to her father, and the other two, Aglauros and Herse, more remote. The family of Cecrops is completed by his son, Erysichthon (6), who died early. Here we would suggest that for the son there remains another alternative, Erichthonios, who was nursed by the daughters of Cecrops, and also was the foster-child of Athene, and might, therefore, rightly rank on her side.

Omitting for the present the two angle figures on either side, we have for the right end of the composition a state of things closely analogous—three women figures, and a space which we can fill at will with a male figure (3). One of the women (7) has two small children, one to either side, another has a youth in her lap; the third (4) sits alone. The three daughters of Erechtheus, worshipped in the temple, are present with their father, who became in later days the hypostasis of Poseidon, and who therefore naturally, with his family, is ranged on the sea god's side. The children fit in admirably. Oreithyia (7) with her twins, Zetes and Kalais Kreousa, in her lap; her son Ion, and Chthonia, childless, who devoted herself to the State. The explanation certainly seems simple and convincing, especially if the west cella is recognised as the house of the Parthenoi. The angle figures remain, and these—once it is acknowledged they must belong to the Acropolis—fall easily into their places. With Erechtheus in the Erechtheion was worshipped Butes. He and his wife, who is variously named, occupy the right angle. No presentment of Erechtheid cults would be complete without them. Of equal importance to the side of Athene is Bouzyges, the primæval ploughman who reclines with his wife in the left angle. Pheidias belonged to the sacred family of Bouzyges; he would not be likely to omit his revered ancestor.

As to the east pediment the most interesting point in Dr. Furtwängler's view is that, setting aside the view made popular by Dr. Waldstein in England, that the two draped figures (one reclining in the bosom of the other) in the right angle are Gaia and Thalassa, he returns, but with a difference, to the old orthodox view that the three together are the Moiræ, the Fates. The old commentators gave us the name of Fates, merely because that was convenient for a group of three, and Fates might be present at a birth—further they are present at the birth of Athene on the Madrid puteal. Archæologists, on the other side, felt that it was difficult to suppose the Fates, if present, were so remote from the action, and turned rather towards the chariot of Night than towards the birth of the goddess. Dr. Furtwängler suggests that the Moiræ were, according to Hesiod (whom Pheidias often follows), the children of night. They are grouped along with, and looking towards, their mother. Moreover, the Moiræ had a special cult, carried on by the Praxiergidæ, the maidens who wove the peplos. As regards the male figure near the left-hand angle, Dr. Furtwängler makes a startling innovation. It is widely known as the Theseus, though probably few of the modern school of archæology would care to support this attestation. Recently Professor Brunn, followed by Dr. Waldstein, have given to it the name of the mountain Olympos. To this Dr. Furtwängler objects on the same ground as to the river-gods—*i.e.*, that it anticipates a post-Pheidian artistic

conception. The problem is to find a youth, a denizen of Olympus, who is in close relation to Helios, whom he faces. The solution suggested is Kephalos, the young hunter of the dawn. It is unquestionably true that Kephalos is a frequent figure on vases of Periklean date, but he appears there always in conjunction with Eos, and his solitary reclining figure does not seem wholly satisfactory.

In conclusion, we may note that what is offered here is (all that space allows) a summary of the most novel points in his argument. Without a minute examination of inscriptions it is impossible to do full justice to the case as it stands, on the question of the treasures and the opisthodomos, between Dr. Furtwängler and Dr. Dörpfeld. It seemed desirable, however, that the main positions should be clearly stated, in order that views so striking and, in some respects, so revolutionary, should be made available for English students, to whom, naturally, any question affecting the Parthenon is of special national interest.*

NOTES.

A SCHEME has been started which, if it succeeds, may have very important results for the decorative treatment of English architecture. This is, the foundation at Birkenhead of a Della Robbia Pottery Factory, to be worked by a company to be formed for the purpose. The object is the production of an architectural decoration in earthenware, with figure or ornamental design partially coloured and covered with a glaze or enamel capable of withstanding the effects of the English climate. The promoters, recognising the fact that the use of steam-power has a tendency to paralyse artistic development, and that this is really the cause that the work throughout the country has so little artistic merit as compared with the work produced even a century ago, intend that the principal work in this pottery shall, so far as possible, be done by hand. The company will take apprentices whereby a younger generation will be taught and trained in a practical manner, and a tradition perpetuated, and it is hoped in this way to foster the growth of a new school of architectural decoration. The pottery will be carried on by managers under the control of a council consisting of the following gentlemen :—Mr. G. F. Watts, R.A., Mr. Holman Hunt, Mr. John Lea, Mr. P. H. Rathbone, Mr. H. J. Falk, and Mr. Edmund Ware, and the services of Mr. Conrad Dressler and Mr. Harold Rathbone have been secured as managers. The company is already formed and premises secured at 2A, Price-street, Birkenhead; we do not gather exactly, from the circular sent to us, to whom application is to be made for special information; no secretary is named. The scheme has (as might be expected) the cordial support of a considerable number of leading artists and architects of this country, including Sir F. Leighton, Mr. Watts, Mr. Holman Hunt, Mr. Walter Crane, Mr. William Morris, Mr. Waterhouse, Mr. Collcutt, Mr. Belcher, Mr. J. P. Seddon, Mr. Basil Champneys, Mr. Somers Clarke, and others, whose letters on the subject have been printed for circulation. Mr. Walter Crane in his letter observes :—

"I have long felt that one of the great needs as regards the external adornment of our public buildings has been the lack of *colour*, and it may be added *vitality*, in modelled or carved sculptural design. Now, it seems to me that in reviving Della Robbia ware, you give splendid opportunities to both designer and colourist for producing things of beauty, which, if our architects become alive to its capabilities, will at once furnish them with the means of giving life and colour to their buildings, and of redeeming the streets of our cities from the reproach of blackness and depression which too often under our present atmospheric conditions sits heavily upon them.

The richest stone carving in the course of a few months loses all its chiaroscuro, on which its decorative effect depends—becoming, in fact, a mere soot trap; while a vitrified material covered with majolica glazes is practically indestructible, and is washed by every shower.

Those who have seen the frieze of the Ospedale at Pistoja (a coloured cast of which is in the South Kensington Museum) know what a fine architectural effect it has upon the building of which it is a part. The sight of such a work suggests what beautiful things might again be done in the same spirit by the co-operation of capable designers and potters. We should have a form of art which by its vigorous design, frank colouring, and dramatic capacity would be essentially popular in its appeal, while eminently educative and refining—a source of pleasure to all; and if associated, as it might be, with local or national history, either in or upon our municipal buildings, our Board Schools, baths, public libraries, town halls, what attractive places our towns might become!"

While cordially concurring in wishing success to the scheme, there is one point which we would suggest for consideration; we hope that it will not be thought an object with the managers to revive the realistic treatment of flowers, fruit, &c., in their natural colours, which is found in much of the old Della Robbiaware. We have always thought this part of the work of Della Robbia and his school distinctly unarchitectural and contrary to true decorative principles; and we hope that in the designs to be carried out at the new factory the colour element, so much wanted in our external architecture, will be obtained without reviving the practice of the realistic imitation of nature.

DURING the present week the annual exhibition of drawings submitted for the Institute prizes is being held at 9, Conduit-street. The Grissell Medal and the Owen Jones Studentship have not been awarded. The Tite Prize goes to Mr. A. R. Hennell, for a design for a Royal Mausoleum. An attractive subject was chosen for the Soane Medallion—a College for a University town—for which there are ten competitors. The successful design is by Mr. J. H. Yonge ("Nil Desperandum") — showing a picturesque treatment, Late Perpendicular in style, planned round one large quadrangle, the chapel and library forming the features at the end of the principal front, and the hall placed opposite the main entrance. A very cleverly-executed pen and ink perspective accompanies the plans, the points of the design being further illustrated by sketches on the various drawings. Of the other nine "Quien Sabe?" has a plan showing two quadrangles, the hall placed across between them, the whole treated with simple Late Tudor or Early Elizabethan detail. "Stet Fortuna Domus" is remarkable for its simplicity, and a good birdseye view of the building in brown wash. "Black Lion" has also an effective perspective of an elaborately-treated design, with two staircase towers forming features of the main front attached to library and chapel, the centre of the front being set back, with a porter's-lodge placed at a little distance in front of the main entrance. The other designs do not call for special mention. For the Pugin Studentship some excellent work has been sent in. Amongst a very good set of drawings by the successful competitor (Mr. R. S. Balfour) are a careful set of measured drawings of the Bede House at Higham Ferrars, very completely worked out, a good sketch of the picturesque Bede House at Lyddington, Northants, a measured drawing of the so-called shrine of St. Etheldreda at Ely Cathedral, with details of the colour decoration, and other sketches which are excellent examples of solid study. In the same competition Mr. Sladdin sends measured drawings of Bishop Fox's chantry at Winchester, an elaborate Late Perpendicular piece of work, showing traces of Renaissance feeling; Mr. J. P. Cooper some clever water-colour drawings of Italian subjects, and a view of the roof of the nave at St. David's Cathedral; and Mr. H. C. Corlette measured drawings of the Belfry of St. Anastasia, Verona, with a plan of the church, and the exterior and interior of the Frari Church at Venice. Mr. J. Joass, the holder of the Pugin Studentship in 1893, has apparently spent his time in Scotland, and the work he submits is very thorough in its character. Several drawings of the Grey Friars' Church at Stirling, with its imposing eastern apse, are given, and also two good ceilings from Craigevar Castle, Aberdeenshire, and the East end of Elgin Cathedral. The Owen-Jones Student of 1893 (Mr. Alfred H. Powell) has the finest examples of water-colour work in the room, particularly fine ones of a corner of the Ducal Palace at Venice; a Pulpit at Sta. Fermo Maggiore, Verona; the Interior of Sta. Croce, Florence; and Pulpit at St. Mark's, Venice. The Soane Student of 1893 (Mr. Arthur J. Bolton) has drawings—largely measured ones—taken in Spain and France, including the Giralda, Seville, the Palace of Charles V., Eranado, Burgos, a Wrought-Iron Screen in the Cathedral, the Châteaux at Blois, and de la Rochefoucauld, near Angoulême. The medal and ten guineas has only produced two competitors. Mr. J. R. Wigfull wins the prize with a useful set of measured drawings of the North Transept at Lincoln Cathedral. Altogether, this year's show well keeps up the average of these interesting annual exhibitions.

THE destructive fire at the scene-store of the Paris Opera House has only again too clearly shown us the folly of keeping the exceedingly inflammable stage decorations in, or even in close proximity to, the theatre in which they are used. No matter how a scene store may be shut off from the rest of a theatre building, the latter is sure to be destroyed if the decorations once get alight, as not even the most efficient fire-brigade can be on the spot in force with the same rapidity as a fire of canvas and tinderwood can spread, and we may even say burn itself out. Paris may consider itself fortunate that the fire in question was at least localised, as, with the exception of straw, no material will travel such distances when alight as canvas, and thus so easily set neighbouring premises alight. Paris is also fortunate in not having to close its Opera on account of a dearth of scenery, though this we believe is, strange to say, partly due to the circumstance that a certain regulation limiting the quantity of scenery allowed to be kept in the theatre itself had been lately disregarded. Of the other great opera houses of the Continent, the one at Vienna is, we believe, the only one which keeps large amounts of scenery on the premises—*i.e.*, has dangerously extensive scene-stores in the theatre proper. The Vienna "Hofburg" Theatre, the Royal playhouses at Berlin, the Opera House at Frankfort, the National Opera House at Budapest, and the Imperial playhouses at St. Petersburg all have separate magazines some distance away. Of these the extensive blocks in the Russian capital are certainly the most interesting. They have only lately been remodelled by the architect of the Czar's Theatre Administration, Professor Victor Schröter, and now hold innumerable sets of scenery as well as all the necessary properties and costumes. One block, for instance, always contains 135,000 costumes, 72,000 pieces of underwear, and 20,000 pieces of armour, besides all the necessary workshops; and another, again, has 1,000 pairs of "wings," a similar number of "drop-scenes," and here, again, all the necessary carpenters' and painters' workshops.

THE correspondence in the Press during the frost on the cleansing of the streets and footways has been of more importance than usual, since to some extent it throws light on the working of the law by which the Local Authorities were bound to keep the footways clean. The law certainly does not at present produce any better results,

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* Since the above was set up in type the new volume of the "Journal of Hellenic Studies" has appeared. It contains an article by Mr. J. G. Frazer on the "pre-Persian temple." The main question dealt with, *i.e.*, whether this temple was still extant in the days of Pausanias, is beside our mark, but in several side issues Mr. Frazer confirms Dr Furtwängler's conclusions, which are unknown to him

and we fear that it is not likely to do so. Our bits of hard winter are so uncertain in their coming and in their duration that, unless the officials of a Local Authority are unusually energetic and public-spirited, they make no systematic and extensive preparations to cope with frost and snow. We see no reason to suppose that the authorities will do better in future. The advantage of making the individual householder responsible for the portion of footway in front of his house was that large numbers of cleansers could be brought into operation as soon as snow had fallen. The objection to it was the extortionate payments demanded by cleaners. If the old system were revived, this extortion might be mitigated by the County Council being empowered to promulgate a tariff for this work, and men should be liable to prosecution for charging anything above this sum. Of course, there would still be unreasonable demands, but they would not be so great as they formerly were. But if the individual householder were again made liable to clean the footways, the law should be made more stringent in regard to the carrying away of snow by the Local Authorities; if the work of the latter were diminished it should be done more effectively.

THE sculpture of Frederick the Great's time has been the subject of much criticism on the Continent, and the discussion of the subject has been latterly revived through the German Emperor wishing to follow his ancestor's example and make his reign remarkable for the works of art created at his instigation. Dr. Paul Seidl, the custodian of the works of art at the Royal castles of Berlin, now publishes some interesting details explaining how it so often happened that King Frederick's good intentions bore sad results. In alluding to the foundation of the Royal workshops for statuary (1747) Dr. Seidl tells us of the misfortune the King had in the choosing of his first "Court Sculptors." Frederick had intended to instal in that position Nicholas Sebastian Adam, the younger brother of Lambert, who had in many instances collaborated with his brother; but, practically through trickery, a third brother, François Gaspard, presented himself in Berlin and was elected to the post, although entirely unknown to fame. The latter was nearly devoid of the higher artistic qualities of his two brothers, but had at all events received an excellent technical education in Italy, destined to be of great use in the training school. The Apollo and Venus Urania, his two first works in Berlin, are like those of his brother's best style, but his later productions were tame and uninteresting. He ended his appointment by taking leave of absence, from which he never returned, dying in Paris in 1761. The second court sculptor was Sigiebert Michel (brother to the renowned Clodion Michel), appointed in 1763, and dismissed seven years later owing to conflicts with the King, due to his excessive slowness of production. There is absolutely no completed work of his extant. Finally in 1774 Tassaert was appointed—a Fleming by descent, but trained at Paris, and an exponent of the French school. His first works were four statues for the large hall of the Palace of Sans Souci (still standing in their original places), followed by monuments of Generals v. Seidlitz and Keith, executed in Carrara marble. Portraiture was, however, not his strong point. His pupil, Gottfried Schadow, was his successor; his appointment, however, being in the hands of King Frederick II.

PROBABLY a very small percentage of the persons who talk of "the triforium," whilst showing a party of friends over one of our old cathedrals, would be able to give a satisfactory explanation of the meaning of the term, if it should occur to some inquisitive young lady to ask for further information on the subject. Those who do not wish to run the risk of having their ignorance exposed at any moment in this way might with advantage peruse the paper by Mr. Edward Bell, F.S.A., on "The Origin and Use of the Word 'Triforium'" recently published in the "Transactions of the St. Paul's Ecclesiological Society" (Vol. III.). The object of the paper is to show that the derivation given by Ducange in his "Glossary of Mediæval Latinity" is correct, and that the word "triforium" is a regularly formed one, meaning the place or passage of the three openings (*trinæ fores*). Parker, in his smaller "Glossary of Architecture," rejects Ducange's derivation on the ground that the separate bays of the triforium-arcade are divided into two or four openings, and not into three. But Mr. Bell is able to show by reference to the monk Gervase's account of the burning of Canterbury Cathedral in 1174, that the word was applied by him indiscriminately to the triforium and clearstory galleries, and indeed to any passage whatever constructed in the thickness of the walls of the fabric. There seems to be no doubt that the word "triforium" was used in the first instance to describe the clearstory gallery, and it afterwards became a technical term for any passage in the wall. Mr. Bell observes that "an examination of Norman churches which have retained their clearstories unaltered shows that in England at least they are generally constructed on one type, viz., with a single light on the external wall, but with *three* roundheaded openings into the church, on the inner face, a passage being left in the thickness of the wall, between the windows and the inner plane." Illustrations of this arrangement are given in the ecclesiastical edifices at Cérisy-la-Fôret and La Trinité, Caen, in France, and at Waltham, Durham, Norwich, and Canterbury, in England. Thus it appears that the clearstory gallery was called the triforium because there were three apertures opening out of it in each bay into the interior of the church, and unless the word has some entirely different meaning quite unconnected with *trinæ fores*, it can never have been coined in order to describe the portion of a church now known as the triforium, because a triple aperture is as rare in that position as it is common in the clearstory. Until some very much more probable explanation can be given of the origin and meaning of the word "triforium," Mr. Bell's theory must hold the field. The other suggested derivations of the term are certainly hardly likely to be generally received. The late Sir Gilbert Scott thought the word might signify *third story;* and it has been endeavoured to trace its derivation to the Italian *traforare*, to pierce, and to an imaginary monkish Latin word *transforium*, equivalent to *thoroughfare*. Short as Mr. Bell's paper is, it is full of interest, and deserves more than a mere passing notice.

A CORRESPONDENT who signs himself "A Student" writes—

"I should be obliged if you would inform me through the columns of your Journal what are the best text-books on the various branches of sanitary science as applied to house architecture, more especially on drainage, ventilation, and heating.

I should not have troubled you, but that I think the information would be valuable to many others who may be in a similar position to myself. The student of architecture or of the science of building finds ready to his hand books which are recognized as standard authorities on these subjects; but when he comes to the allied subjects I have mentioned, he is confronted with a medley of books of doubtful merits and advocating very conflicting opinions.

The desideratum for each of these subjects would be a text-book which would explain the broad principles on which all the best systems and appliances are based, without advocating private theories or particular appliances."

As a general rule we have been obliged to notify to correspondents that "we are compelled to decline pointing out books," as at one time requests from correspondents to recommend them books on a variety of subjects became so numerous that to answer them would have been too great a demand on our time. As "A Student" puts the question "on public grounds" and gives a special reason for putting it in regard to the class of works mentioned, we may depart from our rule and recommend the following works: On house drainage and water supply—Knight's "Annotated By-laws of the Local Government Board;" the "Health Exhibition Handbook" (1884) by Mr. Rogers Field and Mr. Eassie; and the article on "Water" in "Our Homes," by Mr. Rogers Field and Mr. Wallace Peggs. On home sanitation—"Warming and Ventilation" by Sir Douglas Galton, and the article on the same subject by the same writer in "Our Homes." On heat—a work by Mr. Thomas Box, General Morin's book (French), and Dr. Valpert's (German) Also, on hygienic subjects generally, Parkes' "Hygiene" (de Chamont's edition), and Mr Pridgin Teale's "Dangers to Health."

THE report to the Local Government Board on the sanitary condition of the river Brent, by Dr. S. Monckton Copeman, states that the formation of the Welsh Harp reservoir has practically cut off the upper portion of the Brent. Water not needed for the Regent's Canal is discharged over a weir about 70 ft. in height into the old channel of the river Brent, and while in dry weather no water at all finds its way from the reservoir above into the river below, at times of heavy rainfall, when the flood-gates are opened, the rush of water is so great as to tear up the river bed, and often to bring about considerable diversions of the normal course of the stream. This being the case, when the water supply is scanty that portion of the river which divides the Willesden and Hendon districts is represented merely by a series of stagnant pools, and the real source of the Brent, practically, is the effluent of the Sewage Farm at Willesden. Dr. Copeman examined specimens of effluent from the various points, and in each case found the fluid to be of a dirty straw colour, turbid, containing obviously much suspended matter, and having a faint, sickly smell. Alongside the Grand Junction Canal, where this is carried by an aqueduct over the Brent and at right-angles to the stream, there are to be seen, on both sides of it, enormous heaps of London refuse, consisting of "hard" and "soft core" and of gas lime, which, to the amount of many thousands of tons, have been deposited here by contractors. At the upper level these heaps are flush with the canal towing-path; and as they are situated on either side (and practically up to the edge of) the river, the latter appears to flow through a cutting at this point. On the Brentford side numerous shallow channels, cut out in the soil, afford demonstration of the fact that a considerable, if not the greater portion of the drainage of these huge filth accumulations (which are of greater extent on this than on the Hendon side) finds its way by such routes to the stream, the waters of which thus become fouled to an extent "which it is difficult for anyone who has not actually visited the spot to adequately appreciate." Brentford is casually referred to in Spencer's "Faerie Queene" as "a town of mud"; it seems under modern circumstances to keep up its old reputation.

THE report of the Surveyor's Department for the city of Belfast for the past year shows that there has been a great deal of activity in the carrying out of public improvements, especially in connexion with streets and roadways. Twenty-six streets have been widened or improved to a greater or less extent by the Department, and at seventy-five different streets works have been commenced by owners of property at their own cost, some of them completed within the year, others being still in progress. The following quotation from the Report gives also a satisfactory account of the progress of drainage work:—

"The various works in connexion with the main drainage scheme have made fair progress during

the past year. All the contracts for the Trunk System have been completed except those for the upper portion of the low level sewer from Lagan Bank-road to Ormeau-road, and the eastern branch of the low level sewer under the river Lagan, and thence to Middlepath-street. Both these sections, however, are being rapidly proceeded with, and will, it is expected, be completed by next autumn. An arterial sewer has been constructed in Shankhill-road, from Beresford-street to Ballygomartin-road, and a similar work is in progress in Falls-road, between Barrack-street and Springfield-road, both discharging into the new high level sewer, thus diverting a large amount of sewage, hitherto polluting the streams, into the new system. A branch sewer has also been constructed from the low level sewer in Duncrue-street, through the Belfast and Northern Counties Railway Company's lands, and along North Derby-street and York-road to "The Grove" entrance gate, which provides an outlet for a low-lying district of the city hitherto frequently subject to flooding. The old sewers of this district have been remodelled to harmonise with the new works.

The outfall works for the main drainage system have been for several months in operation on Parliamentary lines, the sewage being discharged during the first portion of each ebb tide into the Whitehouse-roads. Duncrue-street pumping-station has been fulfilling its function the whole of the year, and that of the outfall works for some months. The beneficial effect upon the River Lagan, now that more than half of the sewage of the city is diverted from it, is very marked, and no complaint of injury or pollution to the shores of the Lough has arisen; on the contrary, reports are coming in of the improved state of the neighbouring foreshores.

During the past year the city has enjoyed an immunity from flooding, unprecedented in late years, and with the remaining extensions of the main drainage works it is hoped that still further improvements for the abatement of this evil will be effected."

WE are glad to hear that it has been decided, as a first step, to call a meeting of all who sympathise with the preservation of the City churches. This meeting will be held in St. Edmund's vestry, Lombard-street, on Wednesday, the 17th inst., at 5 p.m.* With the object of the meeting we are, on principle, entirely in sympathy, but we hope, in the interests of the cause itself, that those who speak at the meeting will remember that there are two sides to the question; that it may not be possible to retain every existing City church, independently of any question of its architectural interest; that the present has its claims as well as the past; and that even in the interests of their own object it is bad policy to drive away moderate people by insisting in a bigoted manner on the retention of old buildings without any regard to modern necessities.

LETTER FROM PARIS.

A FEW days ago, in the course of the discussion of its expenditure, the Municipal Council suppressed the subvention which for twenty-three years it has granted, in the form of scholarships, to the "École Speciale d'Architecture," founded in 1865 by M. Emile Trélat. This step is the more noteworthy inasmuch as, the preceding week, the Conseil-Général de la Seine suppressed also the position of Architect-in-Chief to the Department, filled by M. Trélat, so that the proceeding almost looks as if it arose from personal hostility to an architect whose opinions are not calculated to render him a *persona grata* to a Republican Government. It is probable, however, that these decisions have nothing to do with political feeling. In regard to the "École Speciale," the Municipal Council seems to have been only adopting a perfectly just position in regard to a paying school, which is in quite a different position from the École des Beaux-Arts, where the instruction is entirely gratuitous. With M. Trélat the course of studies lasts three years, and absorbs the whole time of the students, who at the end of it are subjected to an examination, on passing which they are dismissed with a diploma certifying them to be "architectes hygiènistes": which sonorous title is regarded generally as of rather doubtful value.

At the École des Beaux-Arts, on the contrary, the course of studies lasts twelve years, sometimes more; but while following this course the students can also carry on work under practising architects, and thus go through a practical apprenticeship which, while enabling in part to earn their living, fits them also much better for the actual work of life than a merely theoretical education. And if we consider the results obtained by the "École Speciale" in the period comprised between 1871 and 1891, while we find ninety-four scholarships, contributed to by the municipal authorities to the extent of 166,000 francs, twenty-six only of the holders of these are now known as architects, and of these, fifteen have thought it necessary also to pass the course of the École des Beaux-Arts. In refusing to continue the subvention granted for so many years the Municipality has practically expressed its opinion that the teaching at the "École Speciale" is of much less value than that given at the École des Beaux-Arts.

At the same sitting of the Municipal Council on financial expenditure, the question of the completion of the Boulevard Haussmann came up again. Many of the members demanded a vote for this purpose in consequence of its importance in regard to the future universal Exhibition; but in spite of the promises made by the Administration, and the urgent representations of all those who understand the necessity of completing the work, it is probable that this main road, which begins at the Arc de l'Etoile and traverses the richest quarter of Paris, will remain cut short near its junction with Rue Taitbout. It is difficult to understand the reason of this delay, which can hardly proceed from mere economy, since several large financial bodies have offered to advance the necessary funds for the work of making the road and for the necessary purchase of house properties.

In spite of a good deal of reasonable opposition from various members, the Council has before its recess voted definitely for the installation of the artistic collections of the city in the Pavillon des Champs Elysées. As this pavilion—not in any case very fit for such a purpose—is included within the site of the 1900 Exhibition, the procedure of the Council is rather imprudent, inasmuch as the whole of the constructions for that Exhibition will be made the subject of competition which may possibly result in the suppression of all the existing constructions on the site, in order to provide something entirely new.

It is announced that there is shortly to be a competition, instituted by the Government, for designs for a new type of postage stamp. It is to a deputy of Paris, M. Mesureur, that we owe this initiative of a reform the utility of which is very doubtful. According to the expression of the honourable member, it is desirable to "Republicanise" the French postage stamp, and to substitute for the present allegorical device, which has been in use since 1876, a new allegory which cannot apply to any other form of government, but which will properly and specially typify the political ideal of modern France. The programme, however, leaves full liberty of choice to the competitors; so that we may conclude that the author of the movement has himself found it difficult to give any precise definition of what he wants. We do not expect much from the result of this competition, which is to be decided some time in the course of the present year. As allegories go, the present device, representing Commerce and Industry as supporters to the globe, is as good as any they are likely to get. Monarchical countries escape this little difficulty, as they have only to put the reigning sovereign's head on the stamps. But it is rather difficult to symbolise such an abstract entity as republicanism, and "the head of the Republic" does not seem to impress our artists very much. Fourteen years ago the municipal government of Paris also wished to create a typical bust of the Republic, which was to be affixed to all the public monuments and on the walls of public meeting-halls, &c. A competition was opened for this, in which the best-known artists of the day took part, but the results were so poor that the competition was cancelled. Since then, whenever an effigy of the Republic is to occupy the place of honour, the bust executed by Jean Gautherin is used, which, though not perfection, has the merit of being found less bad than any other. Perhaps it will be much the same with the future postage stamp design.

For some days past the Bank of France, very much cramped in the historic hotel which it occupies in the Rue de la Vrillière (built by Mansarde in 1620), has installed its archives and its "Service des Titres" in the old Theatre Italien, once so well known under the name of the Salle Ventadour. All this large building has been totally transformed, and the Service des Titres, which holds property to the extent of four milliards of francs, occupies one half the house to the height of four stories. Throughout all this portion of the buildings the stone walls have been lined with iron, making a kind of immense strong room, divided into three parts by glass floors. The doors of this unique muniment room are closed by hydraulic power, and only a single staircase gives access to the interior. The portion of the building facing the Avenue de l'Opera is reserved for offices and public rooms.

A good many artistes' exhibitions of various kinds have been held recently in the Georges Petit Gallery in the Rue de Sèze, where the sale of the pictures of the late painter, Cabat, was recently held. Two ceramic artists, M. Dalpayrat and Mdme. Lesbros, have just exhibited conjointly a series of works in stone-ware and other varieties of ceramic ware, including realistic representations of fruit, animals, &c., finished with a surface and colour which are pleasant to the eye, but very destitute of invention. Next comes the annual exhibition of M. Edward Lachenal, one of the earliest and most fervent apostles of the revival of ceramic art in France. He exhibited this year a fine collection of vases and plaques of varied profiles and decorated with floral ornament; also some very fine restorations of ancient Persian faïence, and some berutiful enamelled work. Not long after we had an exhibition by two landscape painters, MM. Jacquin and Ogiar, to which succeeded an exhibition organised by a certain number of lady artists and offering very little interest. We may mention also an exhibition which a group of new impressionest painters organised in the Rue Lafitte. It had only a "succès de curiosité," and the public showed perhaps, by its indifference, a pretty accurate estimate of the real value of the eccentricities offered to it by Mm. Pissarro, de La Rochefou cauld, and others of their school.

The Luxembourg has reopened its doors after having received some important new works, among which are the studies of Meissonier purchased by the State, and those given by the son of the painter. We shall shortly see there also the fine portrait of Cardinal Lavigerie by M. Bonnat, which had been sent to Chicago. A small new room, situated on the ground floor of the museum, has been reserved for drawings, etchings, engravings, and lithographs, by modern masters. M. Bracquemard occupies an important place here; and the exhibition, though at present very incomplete, is an interesting addition to the museum; but for some odd reason, while the public are allowed free access to every other room in the museum, a special card of admission is necessary to penetrate into this one.

M. Bonnat, whom we have just referred to, has been unanimously re-elected president of the Société des Artistes Français. MM. Cavelier and Daumet are elected vice-presidents, MM. de Vieillefroy, Thomas, Coquart, and Baude, secretaries, Mr. Tony Robert-Fleury reporting secretary, and M. Boisseau treasurer.

We are glad to be able to announce that M. Cavelier the sculptor, is recovering from the effects of the bad fall he met with a short time since, and which it was feared at first would have serious results; and in spite of his great age, the energetic artist expects soon to be at work again.

THE NEW GALLERY EXHIBITION.

A MORE detailed examination of the exhibition of Early Italian Art at the New Gallery entirely confirms our first impression, that it is one of the most interesting and valuable loan exhibitions held in London for a good many years back. From an artistic point of view, however, it is so more especially in reference to the objects of decorative art which form a large proportion of the show. The pictorial portion of the exhibition is, no doubt, very interesting in a historical sense, but it must be admitted that in regard to a great many of the pictures the interest is more historical than artistic. It may be observed also that in this portion of the exhibition the nominal limit implied by the title has not been strictly maintained. One cannot accept examples of Raphael, Lionardo, Luini, and Andrea del Sarto as representing "Early Italian Art," and it would have been more logical to have been content with rather fewer paintings and kept within the limits of the programme.

We shall devote our necessarily brief comment to the decorative work rather than to the paintings, as being both in reality the best portion of the exhibition, and also the one most directly connected with our subjects, since decorative art is governed by precisely the same æsthetic laws as architectural detail. In this portion of the collection nothing will perhaps be

* It is requested that all who are unable to be present, but whose sympathies are with the preservation of the City churches, would write to Mr. C. Talbot Rotheram, 19, Billiter-square-buildings, E.C.

found more interesting than the collection of "Personal Ornaments" and work of a cognate description contained in case C in the west gallery. The most remarkable object here is a large rock crystal vase (404) of the sixteenth century (we may ask again whether that is strictly "Early Italian art"), the large crystal bowl beautifully engraved in arabesques, the mouth an eagle's head and the handle a dragon, both decorated in gilding and coloured enamel. This is as sumptuous a work as could well be seen. Another crystal vase, and a hanapin of crystal (the latter from the Spitzer Collection) are also worth attention, though far inferior to the first-named work. Another gem in this case, of much smaller dimensions, is the small reliquary (407) said to have belonged to Catharine of Braganza, consisting of the cylindrical portion of an arm bone, mounted in hoops of gold and enriched with translucent enamels of singular beauty and purity of colour. This cylindrical portion, about 3 in. long, is hung with chains as if intended to be used as an ornament. Another perhaps still finer work in the purely artistic sense is the long belt (475) with circular silver mounts enamelled and nielloed in the most beautiful and delicate conventional floral designs; one of the most perfect works of art in the gallery. The enamelled gold necklace and pendant (411) "of Cellini work," as the catalogue gives it, set with pearls, diamonds, and rubies, is, when considered as a personal ornament (as it evidently was intended to be) most remarkable for its sumptuous character and high relief in the settings; a kind of ornament only to be worn by an empress or a queen on a grand occasion. A collection of finger-rings, lent, like some others of the best articles in this case, by Mr. Frederick Davis, have been mounted, apparently with the desire to show the richness of the precious stones with which they are set, in such a manner that all the rest of the ring is nearly out of sight of the spectator: a mistake. What one wants to see is the design as a whole; the mere value and perfection of the jewels with which it is set, and which forms the centre-point of the design, cannot be properly appreciated unless we see the whole ring. These are apparently a collection of beautiful works of their kind, and we hope they may be rearranged before the exhibition is over, so that one may have a better chance of studying and admiring them than we can have under the present merely "jeweller's" arrangement.

Case D of "bronzes, crystals, &c.," in the same room, contains among other things a number of very fine keys, two especially, "steel keys of a cassone" (541-2), which might well be studied by some of the people who design ceremonial keys for the opening of museums and other institutions, and who seldom seem able to turn out a decent piece of art, or even in general to escape the ludicrous. One great value of this exhibition might be, if the opportunity were made proper use of, to create among our art-workers a perception of something better than the things they are in the habit of turning out; but we fear little use will be made of it in this way. Those who go to admire and study work of this kind are generally those who already know the value of good design; and it can hardly be hoped that the designers and artisans who really contrive and make the ceremonial keys and caskets will take serious trouble to improve so long as they know that they will get no credit for any improvement in their work; that their personality is hid behind that of the man who sells it, and that he would infinitely prefer that they should make what would sell best than what would please the most cultivated perception. Among other things in the same case we may draw special attention to the silver scent-case (No. 513), a bit of work of Oriental richness and delicacy. There are some fine examples too of that old Florentine art of coloured wax relief, which a clever lady artist has been reviving for the past two or three years in the Royal Academy sculpture room; especially two very fine and expressive miniature heads in high relief, representing "Hell" and "Purgatory" (536).

In the case of bronzes, E, our attention was at once attracted by one of the smallest and least prominent exhibits, a circular plaque of about 4 in. diameter, a mirror back, with an alto-relief (579) of a bacchante, the style of which at once bespeaks a great artist, and one is not surprised to read in the catalogue the name of Donatello. It is worth more than anything else in the case, but must be looked for, except by those whose eye has been quickened to pick out great art on a small scale. The other contents of the case are "good bronzes," of more or less interest; a bronze bust of a boy, of the "School of Donatello" (560) is of a rather exceptional character. Case G, of metal plaquettes, contains much that is interesting; case F contains some interesting statuettes and wood carvings, including a very expressive marble bust by Tacca. Case A in the west gallery contains some fine examples of church plate, especially an "incense boat and spoon" (287), a silver-gilt chalice (302) of the normal character but exceptionally good in design, and a super-altar (303), a slab of jasper let into oak, the border ornamented with scrolls, and with figures on medallions at the corners symbolising the four elements. This is said to be a late twelfth-century work, and is both artistically and archæologically of great interest.

In the north gallery the most interesting case (H) is that of ivories, in which one of the most interesting objects is not of ivory but of bone, a very curious semi-Byzantine-looking pastoral staff, conjectured to be of the thirteenth or fourteenth century, and very exceptional in style. We are informed in the catalogue that other pastoral staffs of this type exist, and are believed to have been peculiar to North Italy (the catalogue says "other croziers," as if a crozier and a pastoral staff were the same thing, which they are not). An "ivory Florentine casket" (782) and an "inlaid bone casket" (797), though in different materials, are so similar in design as to seem almost like pendants; the design is curious from its singular quasi-architectural treatment; the lid and stand form a strongly-marked projecting cornice and base; there are flat pilasters at the angles, and between these, along the sides, is a series of semi-cylindrical projections, like stumpy columns without capital or base, the surface of each of which is carved with figure subjects in relief. Among the prominent objects in this case are an ebony writing desk (776) with a profusion of small and delicate arabesques in inlaid ivory, interspersed with small oval plaques with engraved figure subjects, a most beautiful piece of work; and a little ivory needle case (804) carved with a chariot and horses on the side in low relief, and with a naïve character which half suggests Japanese work. There are many other pretty works of art in this case, though none perhaps quite equal in interest to those we have mentioned. In the case of bronzes (J) in the same room, a seated figure of "Charity" (838) not of bronze but terra-cotta, is noticeable for a beautiful simplicity of composition and expression. In case K are four musical instruments which have both artistic and historical interest.

The central hall is rich in fine work of different classes. A case (N) of superb majolica work stands in the centre, flanked by two cases (O and P) containing some very fine specimens of arms and armour, prominent among which (case O, No. 1,177) is a superb russet steel shield, repoussé and damascened, with a panel in the centre containing a fine figure subject, a seated figure and a standing soldier, with a tented background. In case P the back of a gorget (1,191) is noticeable for its fine but reserved ornamentation. Among the majolica ware referred to just now is a plate (1,132) with a subject of Hercules and Dejanira, which is of interest because the pose of the figures is exactly the same as that in a sketch by Michelangelo given in Symonds's recent work; a woman seated on one knee of a man, with one leg thrown across his other knee. The similarity of motive is so decided that one is inclined to think there must be some connexion between the two designs.

A large case of embroideries facing the entrance contains some very fine work; nothing so fine in an artistic sense (though others are richer in effect) as the credence cloth (1,232) in gold embroidery and coloured silk which is laid in the centre of the lower case, over which, in curious but rather picturesque and suggestive combination, a stray rapier is laid. Among other objects in the central hall are to be noticed two alto-reliefs of St. John the Baptist, by Donatello (1,285 and 1,288), alto-reliefs, that is to say, in Donatello's peculiar low-relief fashion, as one may call it; but are they both by Donatello? No. 1,285 certainly is; the other is not very like Donatello's work in general, nor, as compared with its pendant, does it strike one as by the same hand. It is a curious-looking work, a white marble half-length figure cut out and detaching itself strongly from a dark ground; the general effect is rather odd, but the face on close inspection is very finely modelled. Here, too, is Donatello's exquisite bas-relief (genuine bas-relief) in slate of St. Cecila (1,305), which was seen a few years ago at one of the Burlington House loan exhibitions. A very fine cabinet of Milanese work (1,258), of architectural design and richly ornamented with figures, damascening and arabesques in gold and silver, is a splendid piece of work in the finest taste; the ebony cabinet (1,291) once belonging to the Medici family, which forms a pendant to it, is an example of splendid workmanship rather than fine taste, enriched as it is with designs of flowers and birds in inlaid marbles, and as realistic as the material will admit of. In the matter of furniture the glory of the exhibition is also to be found in the central hall in the shape of the magnificent ceremonial throne of Giuliano de Medici, carved by Baccio d'Agnolo in the early part of the sixteenth century. The history of this is briefly given in the catalogue, and it is said to be perfectly well authenticated. This is a seat long enough for half-a-dozen persons to sit comfortably on, and ample in depth, with a lofty back with carved pilasters dividing panels which are inlaid with arabesques in light wood on a darker ground; the front beneath the seat is similarly treated. It is one of the finest state seats in existence; pity a better man did not sit in it.

The centre cases in the north gallery are devoted to illuminated manuscripts, containing a great deal that is well worth looking at; we can only mention two, the coronation of the Virgin, by Fra Angelico (case T), an exquisite piece of work both in general effect and details, and a volume of miniatures of various schools (case V, 1,325), of which the one exhibited formed part of a Tuscan choir-book of the fifteenth century, and contains beautifully-executed figures of the Evangelists. In the balcony is a fine collection of examples of printed books, a number of which illustrate the taste for a proportioned series of margins, with the inner margin towards the middle, which Mr. Morris and others have revived; and while there is no doubt that the effect of this arrangement is excellent in a decorative sense, many of these volumes also serve to illustrate the criticism which we made at the time of Mr. Morris's lecture at the Arts and Crafts Exhibition viz., that however well this arrangement may look, it is not the most convenient for reading from in a bound book. In many of these volumes the result is that the inner part of the page is always on a slant with regard to the plane of vision, and it cannot be read with the same ease as the rest. Among the examples we may call attention to the folio Cicero (No. 1,397, A.D. 1498) a noble page; the first edition of the Divina Comedia (No. 1,400), and "Valturius de re Militari" (No. 1,418) printed at Verona in 1472, and said to be the first dated book with wood-cuts executed in Italy. Two of the engraved pages are open, and show large cleanly-executed outline cuts of fortifications and military engines. The balcony contains also some fine specimens of studies by old masters, some of them of great interest.

We can only bestow a few passing words on the pictures. The south gallery is devoted to the earliest works, and includes a good many interesting examples of the strictly decorative work of the early schools of Florence and Siena, paintings in which the gilding is as important as the colouring, and in which we see, as Browning says,

> "Angels with aureoles like golden quoits
> Pitched home."

The room contains one beautiful Giotto, the "Coronation of the Virgin" (16) and an "Assumption of the Virgin" by Angelico (23), where she hovers over a tomb full of flowers. An anonymous painting of the Florentine school, "The Virgin and Pope Leo IX." (53) is fine and interesting, the figure of the Virgin looking unexpectedly modern in style.

In the west gallery are two interesting works of Luca Signorelli, the "Marriage Feast of Perithous and Hippodameia" (91), and the sequel of the fight of the centaurs and Lapithæ (97). The treatment of the architecture in these and other paintings in this gallery is of interest. In No. 91 we have square columns, black, with decorated panels in lighter tones, the frieze and the wall spandrels above also black, the bases, capitals, and archivolt mouldings red. In Botticelli's episode of the feast in "The Story of Nastagio degli Onesti" (156), we have the same square pillars with gilded Corinthian capitals, an arcade in perspective on each side of the feasters, and a triumphal arch of the Roman type in the rear. In his "Death of Lucretia" (160) we have a more elaborate and more distinctly classical triumphal arch as a background, in which the capitals and bases are of bronze ungilt. There are several fine Botticelli's, the finest being the "Virgin and Child and St. John" (134), and "The Holy Family" (108). Ghirlandaio's "Portraits of Count Sassetti and his Son" (105)

is a powerful work as a portrait, and interesting also from the elaborate treatment of the landscape background, with its mountains and sea, and the carefully-worked-out perspective of the winding roads in the middle distance. Filippino Lippi's "Departure of the Argonauts" (112) is a fine piece of colour, and the man in armour on the caparisoned horse in the foreground is splendid. In the North Gallery we come to later masters, including Lionardo and his imitators Luini and Solario, who are grouped together. We cannot say that the Lionardo's raise one's enthusiasm much. Andrea del Sarto is represented by a charmingly-grouped academical composition of the "Virgin and Child and St. John" (214), poor in colour, and another "Virgin and Child" (232) in which "the perfect painter" is seen quite at his best; the sentiment is poor, but the execution beautiful. Various Raphaels exhibited are more or less unsatisfactory, and one or two looking very doubtful; the "Virgin and Child," belonging to Mr. C. Butler (254), is a fine example of an often-repeated motive, and the profile bust portrait of a young man (256) is interesting and fine in colour, which latter is certainly not the case with the curious processional composition of "Christ bearing the Cross" (242). Two or three small Corregios scattered about the room are very happy specimens of this painter's devout prettiness. Generally speaking, however, it is not the pictures which will form the great attraction of this exhibition.

MAGAZINES AND REVIEWS.*

Harper's contains an archæological article of some importance by Mr. Boscawen on "Egypt and Chaldea in the light of recent discoveries," on some of the most recent discoveries in the latter neighbourhood which throw light upon the early connexion between Egypt and Mesopotamia, long anterior to the great period of Egyptian temple building. The discoveries dealt with are those of M. de Sarzec, and some of the illustrations are exceedingly interesting and significant, especially the plans of cylindrical brick piers discovered among the remains of the city of Gudea, and which look, as Mr. Boscawen says, like the attempts of a brick-building people to imitate the quadruple-reeded pillars of early Egyptian architecture. The article is well worth the attention of those who are interested in the history of architecture. Mr. Edwin L. Weeks contributes an article on "From Ispahan to Kurrachee," including illustrations of the architecture as well as of the human types to be met with on the way.

The *Century* commences with a short pleasantly-written article on Frans Hals by Mr. T. Cole, with two or three illustrations of the painter's works. "Life in a Lighthouse" by Mr. Gustav Kobbé, is a spirited and well-illustrated attempt to enable the reader to realise the circumstances of lighthouse life, together with a description of the fate which befell the first American lighthouse and some of its occupants in a gale.

In *Scribner* we meet again with Mr. E. L. Weeks, as illustrator this time not of his own but of another man's writing, that of Mr. F. Marion Crawford, who contributes his concluding paper on "Constantinople." Mr. Hamerton contributes a critical article on Manet, in which he does not ignore the shortcomings of that eccentric and self-willed painter. The plain truth, he says, "is that while some of Manet's work was strong in style and harmonious in colouring, a good deal of it was very crude, and this seems to have been due to his habit of improvisation." One of Manet's convictions was that the colour ought to be left fresh without tormenting the life out of it with the brush; but, as Mr. Hamerton says, if the colour is not of very good quality when so left, the mere freshness and crispness of touch are not a sufficient compensation. Our own impression is that the idea that art can be an improvisation is one of the most false ideas that was ever propounded, and that works thus quickly produced will as quickly die. Art means hard and painstaking effort after perfection, and nothing really great or permanently effective has been or will be produced otherwise. "Stories in Stone from Notre Dame," by Mr. Theodore H. Cook, has little to do with the subject, which is mainly the grotesque "devils" of the Paris Cathedral, the most powerful of which Meryon first made famous, and a number of which are here produced from photographs. We learn that a good many of these are copies made under the eye of Viollet-le-Duc, the old ones having begun to decay beyond hope of preservation; this takes away a little of the interest from the subject, though perhaps it was better to preserve them in copies than to lose them altogether. It is to be hoped the weather-worn originals are carefully preserved. The worst of it is that (unless a careful record is kept) these copies will in course of time, when themselves weather-worn, possibly be taken for originals. *Scribner*, which is very artistic in its contents this month, also includes a very pleasantly-written and sympathetic article on Reynolds, by Mr. Frederick Keppel. It is satisfactory to find that, in their fashionable depreciation of most things in English art, and exaltation of everything French, the American critics are not yet so wrongheaded as to begin to write down Reynolds, as they have attempted to write down Turner.

The *Idler* contains an illustrated article on "The Folks' Play in the Tyrol," the historical play of which Andreas Hofer is the hero, and which is, it appears, played on Sundays in autumn and winter at Meran, once the capital of the Tyrol.

The short article in the *Cornhill* on "Military Ballooning" is of practical interest, and an article describing a visit to the extinct volcano of the Caldera in the island of Palma is very well written and gives a vivid idea of the scenery.

In the *Gentleman's Magazine* Mr. Stewart's article on "Old Edinburgh Inns" revives some interesting recollections of the inns of old days, and if the *Gentleman's* admitted illustrations there would be plenty of scope for pictorial illustrations, which one rather misses in connexion with such a subject. However, we are by no means disposed to wish that every magazine should introduce illustrations, because experience shows that there is a sad tendency in such cases for the illustrations to entirely get the better of the literary matter, and for the magazine to be reduced to a mere picture-book with nothing in it worth reading; and after all, one does want some reading in a monthly magazine, and not a mere collection of ever such clever engravings "written up to" by sensational story-writers and article-mongers, which is too often the case now.

In the *National Review* Mr. Edwin Cannan undertakes to show by figures and statistics the probability that there is now a decline in urban immigration. It is high time there should be, so we hope that his figures are correct. He sums up with the conclusion that, except in the case of a few of the most prosperous towns, the influx from the country districts is nearly or completely outweighed by the efflux to the rest of the world, and that the complaint that the urban labourer is dragged down by the competition of rural immigrants is ill-founded. Mrs. Crawford's article on "A Tour in North Italy" is interesting, but political rather than artistic or landscapistic. The writer mentions one circumstance to show that the advertising mania is not confined to this country. Near the "Devil's Bridge" she encountered "the biggest hoarding in the world," which covered over a jutting crag with a huge pictorial illustration of the virtues of a soap which in a single wash had cleansed one side of a chimney-sweep's face. Mrs. Crawford mentions having met with the advertisements of the same soap on Norwegian fjords, and "the trunks of the platane trees which shade the long high road from Milan to Monza are corkscrewed round with long bills declaring that no soap on the face of the globe is equal to Sapola Soap." When is the world going to rise up against this kind of thing?

In the *Contemporary Review* Professor Cunningham makes the hopeless attempt to give logical consistency to the phantom called "a living wage," which he defines as "that which will enable the ordinary man to maintain the standard of comfort of his class," admitting different standards of comfort for different classes. We wonder how many men, of any profession, would contentedly acquiesce, on this theory, in the statement that they had a living wage. "Each," says the writer, "has a pretty definite idea of what he means by being 'able to live'; there is probably an implied reference to the habits in which he has been brought up." Just so, and the struggle to keep up to this standard is one of the incentives to steady and energetic work; but according to the "living wage" theory this standard is to be kept up for him. The practical influence of such a system would be in the long run absolutely demoralising. And then, on Professor Cunningham's way of putting it, we must have a "living wage" established for all clases, in proportion to "the habits in which they have been brought up"; the Professor's argument must necessarily lead him to that; a consideration which is in itself enough to indicate the preposterous nature of his reasoning. Mr. Emerson Bainbridge's article on the "Coal Strike of 1893" is a more wholesome and practical one, and sums up in an impressive manner the list of mistakes which led to a movement by which every one has lost and no one has gained.

In the *Pall Mall Magazine* Lord Ernest Hamilton writes a diatribe against London smoke, but without offering any solution of the question beyond a stray remark about anthracite and other smokeless kinds of coal (of which there is not a sufficient supply for general use on economical conditions), and the equally vague remark that there are several means of getting over the difficulty. He does settle down at the end on the suggestion that the ultimate solution will probably be found in gas for fuel instead of for lighting. This is the most promising speculation that can be made, but papers consisting of so much talk and so little practical suggestion do not help the cause much. Mr. Mallock contributes a paper in a rather eccentric strain on "The Minimum of Humane Living," but which is practical in its essential tendency. He endeavours to show that the maximum wage for a large proportion of the population cannot be more than can be obtained from the cultivation of the worst class of soil that can be cultivated at all; that this is a much lower income than is enjoyed by most of the labourers in other occupations who are demanding a "living wage"; and that to take these lowest wage-earners off this bad land in order to give them more profitable employment can only result in losing so much national wealth by leaving the worst land untilled and losing its produce. He proposes to show in another paper how the cultivators of the poorest soils may earn larger incomes by improvements in industrial methods. The article is, at all events, a welcome exception to the Utopian and illogical manner in which the subject has in general been treated recently.

In the *Fortnightly* "The Ireland of To-morrow" by "X.," is a thoughtful article on the present economical state of Ireland and its possibilities of improvement. In an article on "The Employment of Women" Miss Bulley deals with the conclusions to be gathered from that report on "Women's Industries," to some portions of which we have already referred in a special article. Professor Judd's article on "The Chemical Action of Marine Organisms" is an explanation of the manner in which minute organisms affect the materials which are held in solution in sea-water. Under the head of Correspondence "X." makes some heavy charges in regard to the present mismanagement of the Irish railway system.

The *New Review* presents its readers with the first example of its promised use of illustrations, not as a means of making a popular picture-book, but as a means of illustrating serious articles which require the assistance of illustration, in the shape of an article by Professor Max Müller on "The New Museum and the Sidon Sarcophagi," with some very good separate page illustrations reproduced from photographs. This kind of use of illustrations—the scientific use, as we may call it—is a new departure in a shilling magazine, and it is to be hoped it will meet with the success it deserves. Mr. E. H. Bayley, M.P., in an article on the question "Is Our Lifeboat system effectual?" suggests that there is much mismanagement and much room for improvement, and that a Royal Commission on the subject is called for. A very piquant article by Mr. Walter Crane, "Some Impressions of America," is also illustrated by reproductions of small pen sketches by the author. The article (which is to be continued) is partly political and social, partly artistic. In regard to the latter side of the subject, Mr. Crane thinks that architecture is in a better condition than any other art there, as we should think probable; though "it suffers," he adds, "from the oppressive modern conditions, necessity of taste" [we do not quite appreciate the meaning of that], "the contract system, and the preposterous scale on which architects are called upon to design their business buildings." This latter condition, however, is regarded by some American architects and art-critics as their best opportunity. The following is his description of the manner in which the suburbs of Chicago are made:—

"A long, broad, straight road is made, crossed at right-angles by others. They sometimes break off short on the prairie—to be continued when it pays.

* The object of these notes is to point out anything in the contents of the current magazines which is of special interest to our readers, with occasional brief criticisms on the views expressed in such articles. When a magazine which has been sent to us is not noticed, it is because that number contains nothing that it is within our province to comment upon

Along these straight roads are planted at regular intervals exceedingly irregular houses, often fantastic, the enterprising genius of the American architect and builder (perhaps English after all) breaking out in weird, conical towers, vast verandahs, mansard roofs, or loop-holed structures of undressed stone. The main roads to the town are bordered with huge telegraph poles, or trees, of rough timbers, carrying masses of wires. Vast, dull, red structures, like Brobdingnagian Noah's Arks, rise on every hand by the wharves in and about the city. There are the grain elevators, where the grain is stored, and hoisted up from or run into the barges at the wharves beneath them."

In the *Art Journal* the title of "The Great Master" is given to an illustrated article on Rembrandt, an assumption we cannot quite concur in, though he is certainly one of the greatest. Mr. J. M. Swan's admirable genius as an animal painter is illustrated by some fine drawings of his work accompanying a notice by Mr. R. A. M. Stevenson. In the studies for animal sculpture it would strike one that Mr. Swan was rather consciously imitating Barye. Mr. Day, in a short article on French Decorative Art in London, observes truly that the French are strong where we are weak, and weak where we are strong.

The *Magazine of Art* heads its number with a fine photogravure by Dujardin, from Mr. Burne-Jones's admirable "Giorgione picture," the "Chant d'Amour." An article on M. Puvis de Chavannes and his works by Prince Karageorgevitch will be of interest to those who know the painter's work well, and useful to those in England who do not. Mr. William Morris contributes some notes on the illuminated books of the Middle Ages, with two illustrations in black and white. Architectural subjects are represented by an illustrated paper on "Italian chimneytops," by Mr. T. E. Tidmarsh.

The *Studio* devotes an article to "photographic portraiture," based on an interview with Mr. H. Hay Cameron, and devotes a great deal of space to the Birmingham School of Art, with a number of reproductions of drawings by its students which are very interesting and show that the spirit of art has some rest for the sole of its foot in Birmingham.

In the *Architectural Record* Mr. Goodyear continues his illustrated studies on "The Lotiform Origin of the Greek Anthemion," which he appears to mix up with the Ionic volute in an attempt to get the same origin for both. In the Egyptian origin of the anthemion we quite concur, though it reached Greece by way of Assyria and with much modification *en route;* but this derivation for the Ionic volute appears a forced one. The École des Beaux-Arts, beloved of Americans, is the subject of an illustrated article by Mr. Ernest Flagg.

The *Journal* of the Royal Society of Antiquaries of Ireland includes papers on various local antiquities, including one by Mr. Frazer on "Early Pavement Tiles in Ireland."

In the *Antiquary* we have No. 1 of "Notes on Armour in the Tower," by Viscount Dillon, "Churches in Kent in 1806," by Mr. Arthur Hussey, one on "An Early Norman tympanum in Cornwall," by Mr. A. G. Langdon.

The *Reliquary* contains an article on "The Pre-Conquest Churches of Northumbria" by Mr. C. Clement Hodges.

The *American Architect*, in an extra number commemorative of the Chicago Exhibition, publishes a very fine set of collected illustrations of the buildings of the exhibition.

ASPHALTE IN SICILY.—According to a recent report of the United States Consul-General at Rome, it is only necessary to distil asphaltic rock and to obtain petroleum, which confirms the opinion of a French scientist, M. Coquand, to the effect that asphalte is petroleum in a solid state, which, rising in the form of vapour from the depths of the earth, had instilled itself into the fissures of calcareous rock. Asphalte rock is chiefly found in the district of Syracuse, near Ragusa, known as Renazza, or pitch country, where there is a tableland of great extent, the stone of which is sawn and used for chimney-pieces, doorposts, and staircases. The stone is very easily cut and carved, but where it contains too much asphalte it gums the saw, and has to be sweated or exposed to heat to rid it of the excess of bituminous matter. Belonging to the Miocene formation, this rock is in immense heaps in the midst of molasse, which tends to prove that the petroleum was deposited in it at the very moment that the rock was formed.

PARTNERSHIP AND CHANGE OF ADDRESS.—Mr. Arthur Baker has removed from Lower Phillimore-place to Effingham House, Arundel-street, Strand, and has entered into partnership with Mr. John Turrill, the style of the firm being Messrs. Baker & Turrill.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE fifth general business meeting of the Royal Institute of British Architects was held on Monday at No. 9, Conduit-street, Regent-street, the President (Mr. J. Macvicar Anderson) in the chair.

The annual exhibition of drawings submitted for the prizes and studentships was on view in the large gallery. The following is the list of prize-winners:—

Essays.—Institute Silver Medal and 25 guineas, awarded to Mr. John Begg; Medals of Merit: to Mr. C. Bernard Hutchinson and Mr. Walter K. Shirley; and hon. mention to Mr. Percy Charles Campbell.

Drawings.—Institute Silver Medal and 10 guineas awarded to Mr. James R. Wigfull. Drawing: North Transept of Lincoln Cathedral.

Travelling Studentships.—Soane Medallion and 100*l.* (for Continental travel), awarded to Mr. James Humphreys Tonge; Medal of Merit and 10 gs. to Mr. R. S. Dodds; Medal of Merit to Mr. George S. Hill; and Honourable Mention to Mr. Henry Mitchell.

Pugin Studentship.—Medal and 40*l.* for travel within the United Kingdom, awarded to Mr. Robert Shckleton Balfour; a Medal of Merit and 5 gs. to Mr. Hubert Christian Corlette; and a Medal of Merit to Mr. John Paul Cooper.

Godwin Bursary.—Silver Medal and 40*l.* for travel outside the United Kingdom to Mr. Harry Percy Adams.

Owen-Jones Studentship: (Certificate and 50*l.*) not awarded — (Drawings sent in by Arthur Thomas Bolton and Thomas Rogers Kitsell).

Tite Prize.—Certificate and 30*l.* (for travel in Italy) awarded to Mr. A. R. Hennell.

Grissell Gold Medal (one competitor only) not awarded.

COMPETITIONS.

LLANDOVERY GIRLS' INTERMEDIATE SCHOOLS.—In the recent competition for the Girls' Intermediate Schools at Llandovery, the plans of Mr. J. H. Phillips, St. John's-chambers, Cardiff, were selected by the assessor, Mr. Ewan Christian. The Committee has instructed Mr. Phillips to proceed with the work.

PUMP ROOM COMPETITION, BATH.—At the adjourned meeting of the Bath Town Council, held on Tuesday at the Guildhall, Mr. Radway moved:—"That the authors of the three premiated designs be asked to enter into a further competition. That fresh instructions be prepared by Mr. A. Waterhouse, R.A., or other approved architect, and the set of drawings selected by him, as assessor, be accepted by the Town Council." Mr. Mitchel seconded. Mr. Hallett subsequently moved the amendment of which he had given notice, "that the author of the first premiated design for the Baths Extension Scheme be requested to carry out the work as architect, subject to modification of his design to be made in consultation with Mr. A. Waterhouse, R.A., under the approval of the Council." Mr. Mallett, in seconding, said the amendment was the only practical way out of the muddle into which they had been led. His objection in the first place to "K" was because with the magnificent concert-room which was provided he thought the expense would be greater than that of "O's" plans, but he found that the work would cost 300*l.* less. In fact, the only serious objection to "K's" plans was the way in which the Roman Bath would be covered, but that could be altered. Alderman Marshall asked a question, the effect of which was what security they would have that "K," supposing the amendment was carried, would amend the plans to meet the wishes of the Council? Mr. Hallett replied by reading the letter which the President of the Royal Institute of British Architects had addressed to the Chairman of the Baths Committee, to the effect that in these competitions plans were often recast in the consultation of an architect with his clients. Upon a division there voted, for the amendment 21, against 25. The amendment being lost, the resolution was put, and lost, on a show of hands, by 22 votes to 16.

A SCHOOL OF ANIMAL PAINTING.—It is proposed by Mr. Frank Calderon to open a school of animal painting in April next, if a sufficient number of pupils are forthcoming. Mr. Briton Rivière, and two or three other well-known animal painters, are, we are informed, interested in the scheme. Intending pupils can address to Mr. Calderon at 26, Carlingford-road, Hampstead.

ARCHÆOLOGICAL SOCIETIES.

ROYAL SOCIETY OF ANTIQUARIES OF IRELAND.—Mr. Thomas Drew, R.H.A., President of the Royal Institute of Architects, Ireland, and a member of Council of the R.I.B.A., was, on the 9th inst., elected President of the Royal Society of Antiquaries, Ireland, in succession to Lord James Butler, deceased.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—At the meeting of this Association, held on the 3rd inst., Mr. Ch. H. Compton being in the chair, an interesting series of drawings was exhibited by Rear-Admiral Trendett, of the Celtic Tumulus of Mont St. Michael, Carnac. The mount is wholly artificial, and it consists of a mass of stones piled around a chamber roofed with stone, the whole being covered with a layer of clay, thick enough to prevent entrance of water. It stands nearly east and west, and a small ancient church is built on its summit, where are also a cross and the ruins of a semaphore station. Mr. Loftus Brock exhibited a series of lamps which have recently been found at Jerusalem and its environs by the operatives of the London Society for Promoting Christianity amongst the Jews. They are variously ornamented, one having a curious pattern of palm branches. They are of pre-Christian date. The chairman exhibited a wall tile of Delft ware, most probably made at Malines, obtained from an old house in the City of London, recently demolished. A paper was then read on the Roman altar which has recently been found at Lanchester. It was prepared by the Rev. Dr. Hooppell, and read in his absence by Mr. W. de Gray Birch, F.S.A. Photographs of all sides of the altar were exhibited. The altar has recently been set up for preservation within the porch of Lanchester Church, not far from the place where it was found. A second paper by Mr. F. H. Williams was then read on an ancient crypt, which has recently been opened out for observation in Crypte Court, Chester. The new buildings have been arranged by their owner, to admit of its preservation. It is of fourteenth-century date and groined with transverse and diagonal ribs. The Deputy Mayor of Chester, Mr. C. Brown reported the clearing out of a crypt of late Norman date, on his property, close to the above, which he is having repaired.

ENGINEERING SOCIETIES.

THE INSTITUTION OF CIVIL ENGINEERS.—At the ordinary meeting of the Institution of Civil Engineers on the 9th inst., Mr. Giles, President, in the chair, the subject of the "Concentration and Sizing of Crushed Minerals" was dealt with in a paper by Mr. Robert E. Commans, A.M.Inst.,C.E. The author first referred to the object of concentration, which was to remove impurities with which minerals were associated, and to render them marketable. He then enumerated the several stages of hand-picking, crushing, and dressing, through which the minerals had to pass. The first two operations were briefly dealt with. Handpicking underground was carried out in order to avoid raising more waste rock than was absolutely necessary, and to pick out the very rich lumps to prevent them from being knocked about and broken. Owing to lack of light and the limited time at the mens' disposal, this form of separation was naturally of a rough character, and was usually followed by more careful handpicking on the surface. When large quantities of coal had to be examined horizontal endless belts were generally employed. These were composed of steel plates, or wire netting, and had a width of 4 ft. to 4 ft. 6 in. When travelling at a rate of 40 to 50 ft. per minute they had a capacity of 30 to 40 tons per hour. Revolving picking-tables were mostly used for ore, the pickers sitting round the periphery. To keep down the dust from the ore which had been previously crushed to about 1½ in. size, it was washed with a spray of water. These picking-tables had an outer diameter of 10 ft., and a width of 20 in., and revolved at a rate of from 30 to 40 ft. per minute. For reducing lump-coal prior to mechanical separation, fluted or toothed rolls were commonly employed. The first operation, after crushing, was the careful sizing of the material. This was usually performed by means of screens. Cylindrical screens were mostly used for sizing coal, and nearly exclusively for ore, as this was invariably fed into the screens in a moist condition and washed during the operation of screening by a spray of water. A brief consideration of the principles underlying the sorting or separation by gravity of

particles in water was next given. Jigging-machines, on account of their great simplicity and large capacity, were more used than any other form of apparatus for sorting, not only the comparatively coarse crushed material, but also the fine. In conclusion, separation by pneumatic, centrifugal, and magnetic agency was referred to.

JUNIOR ENGINEERING SOCIETY.—At a meeting of this Society, held on the 5th inst., an interesting lecture on "Boiler Incrustations and Deposits" was delivered by Professor Vivian B. Lewes, F.I.C., F.C.S., Honarary Member. The lecturer pointed out the serious injury occasioned to boilers, and the waste of fuel due to the formation of incrustations, traced the history of various sources of water supply, and showed how the water acquired the power of forming deposits in steam generators. These deposits consist mainly of calsic carbonate, calsic sulphate, magnesic hydrate, and silica, the chemical processes which led to their deposition in the feed-water differing in each case. Examples were given of scales from various waters, and it was shown that fresh water incrustations may be looked upon as consisting chiefly of impure calcic carbonate, whilst the deposit formed by the use of sea water is principally calcic sulphate. Brackish waters give incrustations consisting of nearly equal portions of these substances. The question of anti-incrustators was dealt with, and the lecturer expressed his opinion that if manufacturers were obliged to use a hard water, the most reasonable method they could adopt was to soften it on a large scale before putting it into the boiler, as otherwise serious complications would arise in the boiler itself.

Illustrations.

MONUMENT TO RAFFET, PARIS.

THE monument which has been recently erected in Paris to the memory of Raffet, the military painter, is entirely the design of M. Frémiet, the sculptor, who in this case has, contrary to the usual custom in France, undertaken the design of the pedestal and decorative accessories as well as the sculpture.

The monument, which was paid for by public subscription, is erected in the garden known as the "Jardin de l'Infante," which runs along the colonnade of the Louvre, and terminates near the vaulted passage opening from the Court of the Old Louvre, opposite the Pont des Arts and the Institut. It is in this garden also, but on the side of the Place du Louvre, that the equestrian statue of Velasquez by the same sculptor has been placed.

The bust and the column are in white marble; the figure of the drummer beating the "charge," and the military accessories (cuirass, muskets, sword, and flag), are in bronze.

We may add that it is proposed to commission from M. Frémiet an equestrian statue of Rubens for the same site, to form a pendant to the Velasquez statue.

ST. JOHN'S COLLEGE, HURST-PIERPOINT.

THE additions of the tower and ante-chapel here shown will complete the College Chapel, of which, at present, the nave only is built.

The tower is 28 ft. square and 112 ft. high. In its lower stage are three lofty arches opening into the nave and the ante-chapel, and in its western wall is the principal door; the foundations were laid in 1892.

The Chapel itself, which was built some years ago, stands on the north side of the principal quadrangle. It is 122 ft. long, 37 ft. wide, and 70 ft. high to the ridge of its open-timber roof.

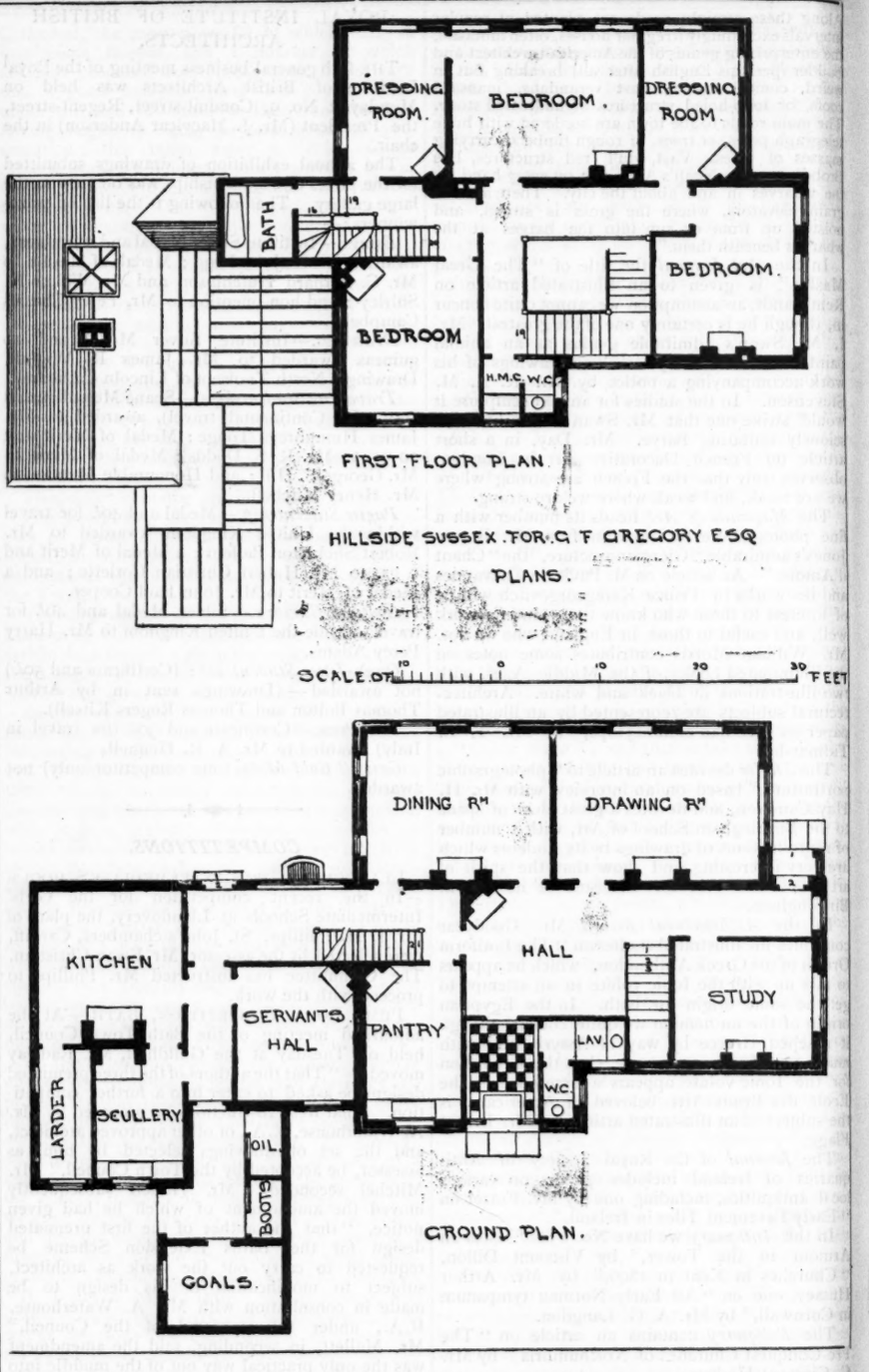
The oak-stalls and seats replacing the previous temporary fittings are just finished, the boys' seats face north and south; at the east end of the southern stalls is the canopied seat of the Visitor, the bishop of the diocese.

The building shown on the left of the picture is the end of the great dining-hall.

The cloister, also an addition, is only one story high, it runs in front of the hall and chapel, and gives a covered communication between them and the north and south sides of the quad.

The works are being carried out from the designs of the college architects (the late) R. H. Carpenter and B. Ingelow.

The view we give is a reproduction of a drawing in last year's Royal Academy Exhibition.



SKETCH DESIGN FOR A MARKET HALL.

THIS drawing shows the front elevation of the market hall, which was one of the subjects given for competition for the 10*l.* premium amongst students of the Royal Academy.

In the *Builder* for December 16, we referred to this design as being especially good amongst those submitted for this subject. The author is Mr. H. Seton Morris.

"HILL SIDE," NEAR ETCHINGHAM, SUSSEX.

THIS house was built in 1892-93 for Mr. George F. Gregory. The materials used are local red brick, gauged red brick arches, and local stone for the plinth, quoins, and copings, red tiles for roof, with lead flat and lead cupola to the kitchen.

The total cost of the house, exclusive of stables, was 2,670*l.* The contractor was Mr. F. Piper, of Hawkhurst, Kent, who carried out the work from the designs, and under the superintendence of Mr. Reginald Blomfield, M.A., architect, of London.

PULPIT, ROTHERHAM CHURCH.

THE pulpit in the Parish Church of All Saints', Rotherham, which we illustrate this week, was constructed in or about the year 1620. It is of black oak, richly carved, and is one of the finest of its class in the country. The illustration is from drawings made by Mr. H. L. Paterson, A.R.I.B.A., of Sheffield.

LIVERPOOL ANNUAL EXHIBITION.—The Liverpool Annual Spring Exhibition of Pictures in Oil and Water-colours, Decorative and Applied Art (under the management of the Liverpool Academy), will be held in the Walker Art Gallery during the months of February and March. Works for exhibition must be delivered at the Gallery, unpacked, on Monday, Tuesday, or Wednesday, the 15th, 16th, and 17th of this month. Further information, including the names of local agents who will unpack and deliver works, can be obtained from Mr. Charles Dyall, cusator, Walker Art Gallery, Liverpool.

"UNREASONABE DEMANDS OF ARTISANS."—In reference to a letter under this heading which appeared in the *Builder* of December 9 of last year, we have received a rather informal communication, signed with initials "G. M." only, purporting to come from the Westbourne Branch of the "Amalgamated Society of House Decorators and Painters" (dating from the Cobden Club, Kensal-road), and stating that "at a branch meeting" (we presume of the branch just named) "a resolution was passed repudiating the action of the workman in the case referred to, thinking that such actions have a detrimental effect to our cause, that of drawing us closer together." We may be glad, if this rather informal statement is genuine and *bonâ fide*, that even one branch of the House Painters' and Decorators' Society can see that.

THE ARCHITECTURAL ASSOCIATION:

DIFFICULTIES OF A YOUNG ARCHITECT.

THE fifth meeting for the present session of this Association was held on the 5th inst. in the meeting-room of the Royal Institute of British Architects, No. 9, Conduit-street, Regent-street, the President, Mr. E. W. Mountford, in the chair.

The minutes of the previous meeting having been read and confirmed, the following gentlemen were elected members of the Association:—Messrs. R. A. Hinds, C. W. Surrey, F. H. G. Fothergill, W. W. Farthing, and W. H. Ward.

Mr. Owen Fleming stated that he had proposed to move the resolution with regard to the technical education of workmen, of which he gave notice at the last meeting, but in consequence of the Committee desiring to consider the matter further before bringing it before the general body, he had, in deference to their wishes, consented to allow the resolution to stand over to that day fortnight.

The President said that he ought to explain that what Mr. Fleming had said about the Committee desiring to consider the matter further before bringing it before the general body was quite correct. It was not that they had any feeling against the resolution; quite the contrary. All they wanted was to have the opportunity of considering the matter further before laying it before the meeting.

Mr. A. O. Collard then read the following paper

On Difficulties of a Young Architect.

The persuasion of the Honorary Secretaries of this Association, and their suggestion of a title, has led to the preparation of a few notes on some of the numerous difficulties which beset the young architect. I hope that other friends will relate their own experiences, and thus add to the general stock of information. In this way our junior members will learn some, at any rate, of the troubles they may expect when having shaken off the chains of pupilage, and the perhaps harder serfdom to follow, they take upon themselves the full responsibility of private practice. I hope, too, that our younger men will not hesitate to join in the discussion, as the subject is one peculiarly their own.

The nature of this evening's paper renders direct illustration on the screens almost impossible, but that void is admirably filled by the pictures we are so accustomed to see around these classic walls. What better object-lesson could there be than the noble gallery of portraits of so many leaders of our art, who, in spite of difficulties, some harder to contend with than any we are likely to meet, have risen to the highest rank of our calling? An honest ambition to try to do as well should animate the breast of every young architect, who will be none the worse for hoping his own portrait may, one day, be added to this distinguished collection.

I am not sure at what period an architectural student first considers himself entitled to put the word architect after his name, nor does it much matter, as his friends and the public generally succeed in finding out, and learn in time to distinguish very well between his claims and those of such people as the West-end sweep, who actually painted the word architect on his sooty signboard because of his duties in connexion with chimneys.

It is scarcely needful to dwell at any length upon the pupilage stage, except perhaps to remark how few articled apprentices seem to realise at the time that their future largely depends upon how they employ their time and opportunities when they are young, and that if they waste either it will be terribly hard to make up leeway afterwards. Those are fortunate who, having a natural bias towards artistic things, succeed in entering a good office, and have in other respects congenial surroundings, an able master, and associates willing to impart information. They are less to be pitied, if unsuccessful, than others less fortunately situated, whose commencement may contribute to a similar result, through uncongenial surroundings, with small opportunity of receiving that artistic nourishment which is sometimes so lamentably absent. Not that I consider an indifferent office is necessarily bad for a beginner, for at any rate he would probably learn some things very useful in after life, and if he is worth anything at all he will soon find out for himself what is lacking and make up the deficiency. That is the easier nowadays, since we are surrounded with the means of acquiring the groundwork of architectural knowledge, of which the new curriculum of this Association is, by some, considered the best.

The time wasted by many pupils is fearful, and they, more than their principals, are responsible for it. Pure laziness is the cause of it, I am afraid, though that evil is not, I fancy, so apparent as it used to be.

The life of the improver and the assistant, two stages which some youthful geniuses strive to evade, and in a few cases successfully, though with eventual good to themselves I doubt, are not so bad as many make out. Salaries, it is true, are small, but not more so, I believe, than in most other arts and crafts nowadays, and the opportunities for improvement and gaining experience are many. It is frequently not till a student becomes a wage-earner that he fully discovers his weaknesses, and it is at this period he generally makes great strides in the profession he has adopted. My advice to all pupils on completing their articles is to try very hard to get into a good office, a few of which they will by that time have learned the whereabouts. If they wish to some day practise on their own account—and who do not?—avoid like a penal settlement the chance of an appointment in some public department. The salary may be attractive, but the monotonous routine saps the energies and lessens the once strong desire to fight a way in the world, and gain such measure of success as devotion to his work should bring to a young man. If one can judge from a recent advertisement issued by a public office, the gilded bait is not quite so attractive as it was, for an estimating and measuring clerk is offered 250*l.* a year, while an architectural draughtsman is to be tempted with 2*l.* a week. A good introduction, a few really good specimens of draughtsmanship, and perseverance in spite of rebuffs, will usually gain the entry to a desirable office, such means being perhaps preferable to those used by an assistant in America, who when he was out of work and hard up, walked into an architect's office and successfully demanded employment, his two chief recommendations being a thick stick and a fierce bulldog.

Various reasons may cause a draughtsman to take the plunge into private practice—a desire for emancipation, the offer of a private job, the fact of being out of a berth, having won a competition, or a solid confidence that work will tumble in, if only the brass plate is fixed up. Or he may gradually accumulate friends and clients while still working all his time, or part, with another architect, sharing an office meanwhile with some intimate friend; this latter arrangement giving him frequent chances of talking over knotty questions with someone he is not too shy to consult.

At any rate, having determined to make a start, say in London, the choice of an address is by no means unimportant. The convenience of clients should be a consideration and first thought, and the effect of even an easily-remembered postal address need not be overlooked, nor the abbreviation, if necessary, of the too many Christian names or initials with which some thoughtless parents provide their offspring.

Having made a start, however clever an architect may think himself, time, and time only, can bring that ripened experience which enables a man to grasp a subject easily and quickly, and grapple with the difficulties successfully which scare a person of small experience. I would say to all beginners, when in doubt or difficulty which you cannot exactly see through, go at once to an older practitioner, and gain from his ample store of knowledge the information you require. I believe it will be found, without exception, that our elder brethren cordially render every assistance to those who seek their advice.

To attempt to bluff a client with pretence of knowledge, or Pecksniffian fudge as it is sometimes called, is little use, so if you don't know, go to some one who can tell you.

Various kinds of architectural work are before you, and those are lucky who can pursue the particular kind which their taste prefer, or their skill and education enable them to tackle best. Circumstances or accident may, to the easily led, dictate a particular class of work, but, on the other hand, any one who firmly resolves to strike out in a certain line, will, in time, probably gain his desire. Church work, public buildings, theatres and music-halls, schools, houses great and small, in fact any building with a roof to it, have their attractions and require special study. There are those who find competitions suit their tastes, a form of speculative excitement which may be distinctly objectionable to others, though it would do even the latter no harm to occasionally have a throw at the architectural dice. Success in competitions, however, seems to be to the few specialists, and the steady jog-trot of private practice has sufficient variation for most men. Having in the course of my comparatively brief experience only gone in for one competition, though that was a success, I am not in a position to say anything on the subject generally, and I will leave it to others present to point out the difficulties in connexion with this branch of work, and to give some valuable tips in dealing with public committees and boards, the chief, and perhaps the only point impressed on my mind, being the necessity of having an appointment made under seal, to insure payment for services rendered.

While clients are few, and jobs far from numerous and remunerative, there is the chance that some older or more fortunate friend may have more to do than he can comfortably manage himself, or in his own office, and may hand some of it over to his needy and thankful brother-T-square, who need have no reason to be ashamed of taking in washing.

Speculative work, that is to say preparing plans for a building to occupy a certain site, for which building you might also have to find a builder or other person willing to lay out capital, is thankless work, and I believe disagreeable from beginning to end. You may very likely have your work for nothing, or even if the building is eventually erected from your drawings, you may have little or no control over the builder, who when he has paid your fees, proceeds to carry out the design as he pleases, and may so distort it, that like Queen Victoria when she once drove past Buckingham Palace, you may inquire "What building is that?"

The manner of obtaining work seems to rest a good deal with the man who wants it. The possession of private means does not insure it, nor does exceptional brilliancy always do so. To sit in an office, and expect work to roll in by some automatic process, is to expect too much in these times of keen competition and over population. As a rule, the young architect has to seek work outside his office by making his wants and abilities known among his friends and relations. The more of these he has the better. To make friends comes naturally to some people. I have heard that teaching in a night-school is labour in this direction not thrown away, though I do not speak from personal experience. Many forms of sport and pleasure, the social or political club, devotion to one's future welfare, the filling of public offices, the frequent use of the voice and pen in debate and controversy, all these and many other methods are employed with advantage. The Press is found by some to gain them the object they desire, namely, notoriety, and even the House of Commons occasionally has a contribution from our ranks. The preparation of pretty pictures for the walls of the Royal Academy gives employment to many of our most skilful draughtsmen, though it is a lamentable fact, the public do not yet seem thoroughly to appreciate the attractions of the architectural chamber. The various building journals give a wide circulation to much work that is good, and when it is so, it is warmly welcomed and appreciated. It would perhaps be well if the editorial censorship were more strictly exercised, though, on the whole, young architects might have a new difficulty to contend with if a tribunal or arbitration board had to decide these matters of taste instead of an editor. I would say to young contributors, consult a few intimate friends before you publish designs, for you, of all people, may be the least competent to estimate the quality of your own efforts. I have briefly referred to a few modern ways of obtaining work. Before passing from this branch of our subject, it may be refreshing to remember some architects who have done, or who are still doing, much work and good, without wishing or needing to attract attention beyond the ever-increasing circle of their *clientèle*. The name of one architect, now, alas, dead, suggests itself, who was scarcely known to his fellow-craftsmen, who never published a sketch or drawing, numerous and admirable as they were, breathing the soul of a true artist, but who, nevertheless, enjoyed a very large practice among the best of clients, and lived the most retired life imaginable. Under such conditions, good results seem more possible than in the case of an architect rushing hither and thither, never happy unless immersed in public functions, and mentioned in the papers. One point is worth passing reference here, and that is the necessity of not becoming an architect for the mere purpose of earning a living. No more disastrous reason could be chosen, and if that is the sole reason that animates any young architect, he had better by far change his vocation. There are other callings where that object is the only one that need be seriously entertained. You will remember what Professor Garnett said in this

room a few weeks ago, when speaking of workmen. That "the man who worked under the pressure of dire necessity to provide the means of nature for himself and those depending upon him, was little better than the slave who worked under the slave-driver's whip. He only was a free man who did his work because he delighted in it; and who did his work as well as he possibly could, because he would have thought it a disgrace to do it in any other way." It would be well if this statement of affairs could be clearly impressed on all who propose to devote their lives to the study and practice of architecture.

The doing of work which, by degrees, finds its way to a beginner's office, is our next consideration. It covers the preparation of drawings, writing specifications, drawing up contracts, interviewing clients and tradesmen, inviting and advising as to tenders, and last, but certainly not least, the carrying out of the approved designs, with the subsequent settlement of accounts. Securing the confidence of a client and enabling him to see that his confidence is well placed depends largely upon a promtitude in grasping his ideas and requirements, and if necessary, directing them. A client comes to the architect with more or less acquaintance with his own wants, but as a rule, expecting that knowledge to be supplemented by the skilled advice of the expert. He expects to be protected from mistakes of all kinds, and to him inconceivable dangers. Too much patience cannot be displayed in pointing out what is undesirable, and what impossible. Having come to a full understanding, sketch plans of the proposals can be prepared, a preliminary plan of the site having been made, levels taken, &c.

A thorough knowledge of materials and construction, of the relation of the proposed building to its surroundings, and the tastes of the owner, a thorough comprehension of all legal enactments likely to affect the building—and these are sometimes neither few nor very intelligible—site, aspect, drainage, and other things, are necessary to the young architect to enable him to complete a design which shall be a credit to him as an artist and man of business and give his client satisfaction. If these conditions be fulfilled, our youthful genius should, for the time being, be a happy man. This period of the work, if an architect be fond of his pencil and brush, is perhaps the pleasantest, and the many hours constantly spent in sketching, measuring, and studying, will all add to the enjoyment of his drawing-board. When, after sundry consultations and revisions of his plans, a scheme is finally approved and the word given to proceed, the designer has to put in operation the practical part of his attainments, by writing such a specification as will properly describe and explain all that is shown, required, and intended by the drawings, for the building they represent. To many this is an irksome job, but it should on no account be relegated to other hands, the architect alone has had the advantage of personal consultations with the client, and the architect alone knows, or should know, what is wanted, and is responsible for the result. Too much time and attention cannot be devoted to details, to ensure successful results, and great pains spent thus at the beginning, saves endless difficulty, annoyance, and very likely additional expense at the end. For instance, drawings should give as much detail and general information as the scale to which they are drawn allows. It is no use making them too pretty, or highly finished, for the builder understands or appreciates little of that. What he wants is a clear set of drawings, neatly figured. with the different materials distinctly shown by colour. The same principle applies to specifications, which, to my mind, are generally too elaborate and wordy. I think it would be very useful if some talented specification writer were to prepare and publish a few terse, every-day sets of specifications, and thus enable some of us to abandon the antiquated forms we seem to cling to so lovingly. The two trades which beginners stumble over most are, I fancy, the joiner and plumber. A few weeks spent in the shops would soon set this right. Going to another profession for an illustration of the advantage of studying things in detail, we may reflect on Mr. Hart's recent article on the late Sir Andrew Clark, in which he remarks that his illustrious friend "never slurred a point in any case, and never passed over a detail which suggested itself to him as being capable of elaboration for the benefit of his patient." With us, a client places both himself and his money in our hands, and the responsibility is no light one. In doing the work, therefore, that a commission entails the young architect is morally bound to devote his whole heart, soul, and brains to it, not sparing himself.

In carrying out work, the beginner may find himself rather at sea. If that be so he had best spend as much time as possible on the job, watching keenly all that goes on, making friends with the workmen, whom he will find as friendly as possible if rightly treated, and willing enough to tell all they know. Do this from the moment the first spit of earth is removed till the last coat of paint is applied. Although it is, perhaps, a little rough on a client, it is a first rate thing for a young man to act as a clerk of works for a time. He will learn a tremendous lot and never regret it.

As pupil and assistant we are brought to see many difficulties which occur in dealing with builders, tradesmen, and clients. But to the young architect these difficulties become far more real, and have a more impressing and depressing effect.

Builders, as a rule, expect to find young architects easy to manage, open to persuasion by emphatic reference to practical experience, and disconcerted by the evasion of some things which they think it safe to omit, or too far gone to rectify. Firmness at the commencement of a job will impress such builders as these, and the condemnation of a bad load of bricks will have a wholesome effect. Reflection on any point which seems doubtful, will enable the beginner to decide what is right and proper to be done. All builders are not like this, fortunately, but when you come across a really good one, do not lose sight of him. One case occurs to me where a builder having submitted a sample brick for some walling was warned not to use them. He thereupon remarked that at all events they would do for the footings, apparently not wishing to remember that place-bricks are as much out of place in foundations as anywhere else, if not more so. So, with all materials used in bulk, be careful to see they are up to specification, for more is to be gained by absence of quality there than anywhere.

The quality of materials used is one of the stumbling blocks in superintending work. To specify the best is one thing, to see you get them is another. Inferior stone, brick and timber, bad joinery and plumbing, paint composed of a non-permanent mixture, mortar and cement bad to start with, and, perhaps, rendered worse by the weather, cheap foreign glass, with specks and flaws in it, ironmongery below specified prices, all give chances of future trouble. Extras, described as "the builder's aim and the architect's dread," are always on your tracks, and will total up in an alarming way if not firmly suppressed. It seems a wise precaution not to incur any additional cost without a client's consent unless clearly covered by a stated provisional item. Omissions, too, must be carefully noted, in spite of a builder's human nature to consider them fair plunder. Always warn a client when any variation, suggested by him, is likely to cause extra expense, and never incur the most trifling additional cost without knowing and settling the amount in writing. It is so easy to give a verbal order! But it is a trap for the unwary, as a few months hence will prove when your memory and the builder's may not precisely agree.

In arranging the terms of a contract, it would be well if a young architect could have proper legal advice, though this is scarcely ever possible. When the Royal Institute of British Architects succeed in producing a well-drawn builder's contract, for which we have waited several years, the young architect may have something reliable to go upon, but till that happy time arrives he must bestow much time and thought in preparing one which will, as far as possible, protect his client's interests with fairness to the contractor.

Never forget the peculiar and delicate position you occupy towards both parties to the contract. The architect is, at the same time, agent and arbitrator, and must remember that fact from the moment the contract is signed.

In arranging the prices of such articles as require special reference in a specification, it is well to see, personally, the various tradesmen and their goods, select what is required, and clearly understand and state whether the prices quoted are prime cost or nett value, or whether list prices, which signify a profit allowance to builders. It is a little difficult to understand exactly why builders should expect a profit on things which sometimes give them no trouble to obtain, but the insidious practice, like tips, has obtained strong foothold. At any rate you can see that your client pays no more profit than you choose to allow, and make your intention perfectly clear to both tradesmen and builders. In spite of your care, many builders will strive to obtain a further discount from the manufacturers, but that is the latters' affair, easily settled by an appeal to the architect.

Having the interests of a client at heart, it ought not to be difficult for an architect to secure his confidence and trust, but the difficulty is sometimes to retain them when affairs for the moment go not smoothly. Do not hesitate to differ from him, politely and firmly, if the necessity is obvious and essential, bearing in mind you may be held responsible for any mistakes which may result, even from the adoption of a client's own notions. Give all suggestions the same courteous consideration you expect for your own, and in all domestic arrangements never fail to consult the ladies—for they can be very bitter, afterwards, on points which they know probably more about than yourself, and surely have a right to discuss if they don't. Never quarrel with a client, or if you unfortunately do, don't round on him like the Duke of Buckingham's surveyor did, out of revenge, as described by Queen Katherine in Shakespeare's Henry VIII. Whatever be your temperament, never show anger or displeasure, and use every endeavour to part good friends, so as to secure a client's lasting esteem for your manners as well as your talents. Architects now stand far better in the public estimation than they used to do, and it should be the constant effort of every young architect to increase that which is more to be prized than title or riches. "Louis XIV. once taking the air in one of his royal gardens, saw Mansard, the architect, walking by. He soon joined the old man, who took off his hat, as was strict etiquette in the presence of his sovereign; but the monarch lifted up his hand in friendly reprehension, and said, 'Pray keep it on, the evening is damp, and you may take cold.' The courtiers, who were all standing bareheaded around the king, stared at this extraordinary show of courtesy. But Louis XIV. observed, 'Gentlemen, you are amazed, but learn this—I can make a duke or a marquis with my own breath, but God only can make a Mansard.'" Such honour is given to few of us, but we may all try to deserve it.

Giving estimates is a dangerous business, best avoided if possible. It is very difficult by cubing up a set of drawings, and pricing the result, to be sure of accuracy. Many gentlemen like to know, beforehand, what the probable cost will be, and in giving them an approximate estimate, you are not unlikely to be far out of the reckoning. A client who can bear with equanimity the news that the lowest tender has come out much higher than his architect's estimate is a marvel, and on the other hand too high an estimate may prevent the job going out to tender. I have the honour of knowing a gentlemen who, by some mental process unknown to me, always forms an estimate of his own, frequently nearer the mark than his architect's.

Always give a client notice of your intention to issue a certificate, in case his money may be temporarily locked up in securities, and he may not wish to realise on a falling market. In issuing certificates, be careful to keep a sufficient balance in hand, and before you give a final certificate make sure your client has really got all he is paying for. Unless a job is a very small one, it generally suits a young architect to receive his commission at the same time as the builder gets his cheque, and many clients like this method, for there is a satisfaction in paying as you go.

The scale of charges issued by the Institute for our guidance is a very useful basis on which to rely, and a copy should be given to a new client before a job is begun. The public are satisfied with its fairness, whatever Lord Coleridge may think.

It is well to submit all contract drawings and the specification to a client for examination, and if a quantity surveyor be employed, let him know that too. Also, in arranging the quantity surveyor's charges, see that the stipulated payment covers the settling of accounts, for though clients as a rule do not object to pay for quantities being taken out, they fail to see why they should pay any more for accounts being made of the variations, ofttimes a tedious affair, and as necessary as the other. Always ascertain who introduces a client, and thank the friend. Keep out of disputes with adjoining owners and the authorities, if you possibly can, and preserve all the arrangements with them in your own hands.

The bye-paths of architecture are numerous, and often bring grist to the mill when it is most sorely needed. Our President referred to dilapidations, and light and air cases, in his opening address. It can do no one harm to be intimately acquainted

with such things, so long as the main object is kept in view. Landscape gardening, designing wall papers, fabrics, carpets, and furniture, are interesting, and these are subjects which young lady architects especially, should be competent to shine in, apart from any other branches they may desire to pursue.

The combination of artistic instinct and business capacity are necessary for the complete architect; perception of what is beautiful and appropriate, and what is ugly and out of place; an intuitive understanding and appreciation of form, colour, construction, and materials. He must not neglect those more worldly things which entitle him to consideration, as a man of business. He must show he appreciates the value of money, and can be trusted to arrange its disposal to the best advantage, artistically, and practically. He must keep a diary. Reduce orders and instructions to writing. Keep copies of all documents and drawings. Arrange all papers methodically in pigeon holes, boxes, cases, drawers, and slides, easily accessible. Earn a reputation for punctuality in appointments, and avoid a reputation for exceeding estimates, and allowing the accumulation of extras.

A young architect cannot be too well educated, and along with his other studies, he should find time to improve his mind in general literature, and in those subjects and accomplishments which will make him acceptable in society. He should not neglect the study of man, for all his life he will be dealing with men, and woe betide him if he fails to understand them. It is this study of man which enables engineers, solicitors, doctors, and other professional men, to gain their own way without causing unnecessary irritation. Leave nothing to chance, and never let questions of time or distance prevent proper attention to work. Do not be bigoted, or stick to an opinion, when some practical mind points out a mistake. Study your health. Have settled habits. Be at your office regularly. Dress neatly, and well. Do not spend too much time at your club, if you belong to one, for the mid-day lunch is apt to expand into a two hours' lounge, that when you return to your office the boy may say, "Mr. So-and-so called, and waited half-an-hour, but cannot call again."

The young architect has uphill work, but his future is mostly in his own hands, and difficulties will melt away if met with determination. So, in the words of an ancient, but unknown, poet—

> If at first you don't succeed,
> Try, try, try again;
> Time will bring you your reward,
> Try, try, try again.

The President said that they had with them that evening Mr. Hutton, the Chairman of the London County Council, and he (the President) was sure they would all be pleased to hear anything he might have to say on the subject.

Mr. Hutton said that there appeared to have been in the consideration of the paper no matter too large or too small for Mr. Collard to submit to their attention. It was essential, as the lecturer had pointed out, that there should be love of work, and that they should all realise their responsibility. The responsibility of the architect was a very great one. Within the County of London there were some 9,000 new houses erected annually, and it was part of the duty of the architect, in his (Mr. Hutton's) estimation to restrict the wave of tasteless buildings. He knew that he should be met by the observation that the client wanted as much for his money as he could get, and there was no doubt that that feeling actuated a large number of clients, but he ventured to think that at the present time the average public were dissatisfied with the domestic architecture of the age. He thought that to some extent it was attributable to the fact that a very large result was often required by clients for a very small cost. A client was in a great number of cases hopeless to help himself, and then it was that he desired the assistance of the architect. If clients had faults of their own there was no doubt that a large number of architects had faults as well. In his judgment as a layman he considered that the architectural profession suffered greatly from being an open profession. He might be wrong, and if so they would correct him. There was no obligation for a particular course of study, and therefore their profession might be called an open one. He thought that was a grave disadvantage, because he regarded, as he had said, the responsibility attaching to architects as very great. Architects were frequently engaged in matters involving quite as great responsibilities as those of physicians or barristers. Their work was enduring, and they had the power either to elevate or to debase the coming generation. Most of their work, of considerable dimensions, would last considerably longer than most of those in that room would live, and, therefore, he said that the architect had in his hand and under his control that which would make or mar the future of his country. It had been well said that truth must be evident in their work. He understood that it had often been advocated that cast-iron might be introduced instead of hammered or wrought-iron. Well, that was a consideration which involved cost, he was aware, but Ruskin, in his "Seven Lamps," was absolutely true when he directed men, if their financial capacity would not allow them to indulge in costly material, not to indulge in that of a lower order. He (Mr. Hutton) thought that was good advice. He felt that the lecture might be a source of encouragement to the young architect, and hoped that in the coming years the reflection of that night, and the sight of the great work before them, would actuate their motives, and would make itself shown in their future work.

Mr. Basil Champneys said, that after many years' experience in architecture, it always seemed to him that one was always learning. It was surprising to him that young architects got anything to do at all: he was often surprised that any one had ever trusted him (Mr. Champneys) with his first work. On the other hand, it seemed to him quite as remarkable that anyone should employ workers above a certain age. They knew that architecture was a work of invention. It was rare to find that poets produced any of their better works after the age of thirty, and very few after fifty. Of course architecture was a little different in some respects because it was so much a matter of experience. The whole process was mainly experience in learning to know how a thing on paper would look in a building. That was the gist of architecture altogether. The appearance of a building when it was up was to the uninitiated quite different from what it looked on paper. Such experience would only come with years. He thought that it was a great pity that at the present day people had in this and other vocations to spend the best and most enjoyable years of their lives waiting for an opening to arrive. He wished it could be different, and that there could be some organisation of the profession which would enable young men to come to the front and have a better chance earlier. Unfortunately, their profession was imperfectly organised, and he thought it would be some time before individuals would be prepared to make themselves subservient to its general interests. He thought it would help the profession greatly if it were an understood thing that general competitions should be limited to younger men, as numbers of young men could show at once what was in them, and men who had made their reputation might well stand aside. Another point would be gained if those who had the offer of a very large amount of work should see the way to limit it somewhat. They might raise their fees, and try 25 per cent. instead of 5, and so give an opportunity to those who did not ask so much. He fancied that the usual system of economy would weigh, and that they might by those means get as much as they wanted without taking up the work which might legitimately go to others. With regard to punctuality at the office, of course an architect could not be expected to be at his place of business and looking after buildings. That was a point which was easily understood by clients. He thought it was important that the young architect should study economy and businesslike habits, and no doubt these would help towards ultimate success; but as the art of design should be the primary aim of the architect, so he believed that it would prove to be far the most important and permanent factor in his ultimate success. With regard to the question of the architect's attitude towards his client, he certainly thought that in all practical matters it ought to be his aim to take his client's measure most completely. An architect should study the wishes and comfort of his client, but in matters of art it was different, and he thought the architect ought to know best what the conditions of art demanded. Having given way on practical points the architect would find the client paying due deference to his opinion on the other matters.

Mr. Aston Webb said he hoped that Mr. Hutton, when he referred so much to bad house architecture, did not mean to saddle the whole of it upon architects. He (Mr Webb) should think that about the amount of their commission, viz., 5 per cent., would cover the whole amount for which architects were responsible. It was almost entirely carried out by speculative builders without any architect's control or advice whatever. Mr. Collard mentioned—and he (Mr. Webb) was glad he did—the portraits round that room. He thought that if the Institute had done nothing else, that they would be still entitled to the thanks of the profession for the collection of portraits which they were gradually acquiring, though it was a misfortune they were so badly hung that they could not see them. One of the points that Mr. Collard made was the difficulties that young architects had in making estimates. He had not the least doubt that that was a great difficulty to many young men, who naturally had the fear of making estimates too high. That was a mistake. They should form an estimate to the best of their power, and then call in a surveyor to check it, and thus they could by the aid of a cube form a fair estimate as to the probable cost of work. His own practice was not to rely upon his own estimate entirely, and when he was asked for one he sent the drawings up to the surveyor to prepare it. He thought an estimate was more the work of the surveyor than the architect. Mr. Collard did not mention very much the difficulties of design. It was one of the greatest difficulties that a man had, and one of the greatest pleasures; but it was a thing each man must work out for himself, no advice being of much use upon it. With regard to the difficulty of overlooking work, one great thing was to treat the men in a proper manner. They should remember that a workman might be a gentleman in feeling as much as themselves, and they should also remember that in the way they treated the workmen the workmen would treat them. Another difficulty that young architects had when they first started in practice were certain temptations which might be put in their way by various people. There was no good evading the fact that the young man starting might have opportunities put in his way which he was doubtful at the time whether he should accept or not. Apart from one's own feeling if they said to themselves "Well, now, would you mind my client knowing this?" that would generally set them right. So also, in the same way in their conduct to their professional brethren; naturally the desire of any man was to get work, and it was difficult for men always to know within what lines they ought to be bound. But that difficulty would be settled if they asked themselves the question, "Should I mind my professional brethren knowing what I have done?" If they thought they would they had better give it up. The great thing was to meet and tackle difficulties as they arise, whatever they were. Browning's description of the man who never turned his back, but stood breast forward, should be one which they should all strive at.

Mr. Thomas Blashill, in proposing a vote of thanks to Mr. Collard for his paper, said he hoped that every architect who came into the profession came because he had a love of the work. It was not an easy profession, but in a sense it was a pleasurable one, although only so to those who had a love for the work. Ever since he (Mr. Blashill) had got to know anything at all about it, the trades and the whole routine, he must say he had never felt tired of it. He had always thought that the operations of workmen were interesting, and the operations of the architect in designing and arranging business matters had always seemed to him to be as interesting an occupation as one could be engaged in. He was quite sure that it was the shortest road to success to have a real and genuine love for what one was about—as then they did not get tired or easily discouraged. Really it was a most serious thing, not only to young men but to all of them, to know how all the large numbers of men who were coming into the profession were to get a living. The idea he should like to impress on their minds was that they could not learn everything at once. A dead level of middling knowledge of everything was the most hopeless condition for a young man to get into. Another point that he believed that most people found that the greatest success in life was to make plenty of friends.

Mr. Atkin Berry, in seconding the vote of thanks, said he was not clear how Mr. Collard meant to put the advice about making a living in the profession. It seemed to him to be open to two interpretations. "Do not let that be your governing motive" was one interpretation, but it also struck him that it might be interpreted as meaning "If you expect to make a living do not come into the profession." In his (Mr. Berry's) opinion it was a profession which to perseverance, industry, and average talent gave

opportunities which few other professions offered. Mr. Collard told them that the public very soon discerned the difference between a properly-qualified architect and a West-end sweep. He was not so sure about that. He believed that their profession was one which the general public were entirely ignorant of. He thought that one of the greatest difficulties a young architect had to deal with was his youth.

Mr. Henderson having made a few remarks,

Mr. S. Beale said that Mr. Collard had given them a vast amount of detail and information to treasure up in their minds. Mr. Collard had told them how to obtain work. They might take it for granted that the Association was formed to tell them how to carry out work when they got it. He wished to know how far Mr. Collard's suggestions as to the means of obtaining work were legitimate. He did not agree with what Mr. Collard said as to public appointments, but he must say that from all the evidence that was at his command he considered that there were several advantages attaching to them.

The President having put the vote of thanks to the meeting, which was carried by acclamation,

Mr. Collard, in reply, said that as regarded Mr. Berry's inquiry as to what he meant by saying that a man ought not to become an architect to earn a living, he wished to convey that a man should not become an architect solely for the purpose of earning a living. As to the methods of getting into a good office, if a man wished to do so, and set his wits to work, he would not have any difficulty. Although he was disposed to think with Mr. Hutton with regard to speculative work in London, he did not think that he (Mr. Hutton) wished to cast any slur upon architects generally. His impression was that Mr. Hutton's remarks were cast at speculative work generally, and not at architects. Some of the work he knew could be attributed to architects, but on the whole it was the speculative builders who were to blame. With regard to public appointments, of course it was very far from his intention to cast any reflection upon men working in them. His point was that if a young fellow really wished to qualify himself as an architect, and to gain that experience which an architect required, and which it was absolutely necessary he should have, he would not gain it in a public office so well as he would outside.

The meeting then terminated.

SANITARY INSPECTORS' ASSOCIATION.

ON Saturday last, Sir Benj. Ward Richardson, President of the Sanitary Inspectors' Association, delivered his New Year's address to the members, at Carpenters' Hall. The Association, he said, was to be warmly congratulated on the success of its operations during the past year. The meeting in Glasgow, where he had passed his student days, had been of the most gratifying nature, and his only regret was that he had been unable to take part in the proceedings. No very striking discovery had been made during the year just past, but there had been a decline of the bacteriological craze, and the world at large was becoming more familiar with the leading truths of sanitary science. Two important events had occurred during the year which emphasised the fact, which had long ago been suggested, that cases of enteric fever must never be confounded with epidemics of an infectious or contagious kind, such as typhoid and scarlet fever. An outbreak of enteric fever at Worthing and another in the valley of the Tees, which had proved very fatal, had been traced, with absolute certainty, to a befouled water supply, the connexion of cause and effect having been illustrated in both cases with unusual distinctness. In the first case Dr. Snow, and in the second Dr. Thorne Thorne, had drawn up reports, which would be found of the highest value. He regarded as a great event, signalising 1893, the movement in favour of a crusade against disease which had been initiated among the clergy of the Church of England in the organisation of a sanitary society. The Church of England Sanitary Association had been established with the following express object: "To aid in securing for the poor improved dwellings, healthy surroundings, and increased facilities for recreation; for the well-to-do, the advantages of good sanitation in their houses; and for all, fresh air, pure water, abundant light, unadulterated food, and the greatest possible immunity from infectious diseases." To a crusade having such an object they as sanitarians must all wish "God speed." A measure now under discussion in Parliament was also for sanitarians a hopeful fact. The Parish Councils Bill was now safe, he thought, though it would doubtless undergo some alterations in the House of Lords. When the Bill passed, he thought the members of the Association should meet in conference to consider what its effect would be upon sanitation. He believed it would revolutionise the ideas of the community and be the means of advancing the science of sanitation to a greater extent than had hitherto taken place. He hoped it would lead to the establishment of a Public Health Department with a responsible Minister at its head, and he hoped that such a minister, whenever appointed, would be a permanent Minister of Health, invested with extensive powers, enjoying high rank, possessing the highest possible competence for the office, and as irremovable as a Judge of the High Court. When this Bill became the law of the land it would make every parish a centre of sanitary knowledge. It could not fail to lead in the future to the appointment of parish sanitary inspectors, with minor duties, who would be practically a body of assistant sanitary inspectors.

A vote of thanks was accorded on the proposal of Mr. Griggs, seconded by Mr. Young, who expressed regret that no mention had been made by the President of a terrible disease, diphtheria, which had been extremely prevalent during the past year or two.

In acknowledging the vote of thanks, the President said he had had a great and sad experience of diphtheria, which he had followed from the earliest cases that had been notified at Ash, in Kent. The disease was then an unknown one, but it had now become one of the greatest of all diseases. He regretted to say that we now seemed no nearer finding out the causes of the disease than we were then. One thing they knew; it was always favoured by impure air, but there were many cases of an opposite kind where ten or twelve persons, amid the most salubrious surroundings, had been attacked in the best houses. They had no sound basis of statistics to go upon as in typhoid and cholera attacks.

Correspondence.

To the Editor of THE BUILDER.

THE CHRISTCHURCH OF DUBLIN.

SIR,—A paragraph in last week's *Builder* may be worth a correction.* *Sigtryg Silkbeard*, King of the Danes of Dublin (not *Edric*, as the printer would have it) founded the Christchurch of the Holy Trinity at Dublin, anno 1038. Observe that "Cathedral of Christ Church, Dublin," as you print it, is tautology. "Christchurch" as we have it is a *Cathedral*. It is one of those few words of Scandinavian speech which have survived in Ireland—*i.e.*, Head Church. The fact of the survival of any part of a Danish-built Christian church in any part of the kingdom is so unique that I think it is worthy of more notice.

Christchurch, Dublin, an Anglo-Norman church of symmetrical cast and design, stands on the substructure of a queer rude old crypt. There can be no mistake about its being much older than the Anglo-Norman work 1190-1235 raised on it. The nave piers of 1230 do not stand truly over the piers below.

A curious *catena* of evidence lately established the authenticity of the Danish work. Strange as it may seem, it started with Charles Kingsley. In his "Hereward the Wake" he intimates the sound historical basis on which he constructed a romance. To his friend Thomas Wright, Esq., F.S.A., &c., &c., he says in his preface as to Hereward:—

"You taught me how to furbish his rusty harness, botch his bursten saddle, and send him forth once more on the ghost of his gallant mare."

Early in his book Kingsley quotes from his friend's authority as to Sygtryg and his cousin, Harald of Waterford—

"He (Harold) had been many a time into Dublin to visit his even more prosperous and formidable friend, and was so delighted with the new church of the Holy Trinity which Sygtryg and his Bishop Donatus had just built . . . that he determined *to build a like church in honour of the Holy Trinity in Waterford itself.*"

The Danish Christchurch of Waterford, with its Anglo-Norman additions, existed until 1770. I was then barbarously effaced to raise a less interesting Classic building on the foundations of it outer walls. Ware's history, however, preserved a very good plan of the destroyed church. Recent works which I was concerned in disclosed the Danish and Anglo-Norman piers, still standing 8 ft. high, under the modern floor. Ware's plan was absolutely "checked" and confirmed. As a matter of interesting record I laid down a correct plan of ancient Waterford Christchurch to an $\frac{1}{8}$th in. scale, and discriminated the Danish from the Anglo-Norman part.

It was mere accident that I placed a tracing of it over a similarly scaled plan of the Christchurch Dublin crypt. There could be no mistaking that, pier for pier, dimension for dimension, the Waterford Christchurch had been genuinely a replica of the Dublin one, as Kingsley had quoted it from Wright. It could be no mere coincidence or accident. With this key the mystery of Dublin Christchurch was plainly manifest. The crumbling rude remains of the Danish Church were easily discriminated from the Anglo-Norman interpolations, and the purpose of them clearly demonstrated.

It is perhaps worth while to correct a casually-clipped paragraph to point to this unique survival of plan of a Danish Cathedral founded by Christianised Danes in 1038.

So far as the nave and transepts go, the identification of the similar plan of the Danish plans of Waterford and Dublin are sure enough. What the Waterford Church had eastward of that before the Anglo-Normans built a choir there, no man can now say; but it is my belief that the whole crypt plan at Dublin is that of the Church of the Sietryg, remaining complete. The curious quasi-apsidal arrangement at the East end, the attached Lady Chapel to the N.-E. so resembling the contemporary Scandinavian Church of Thronjhiem. The known inter-communication between the Danish communities of Dublin and Northern Scandinavia point to this conclusion. A square eastern chapel, to which the apsidal inclination tends, seems to be the *feretrium*, which the relic-mongering reverencing Norseman of Christian persuasion took to. Throndghiem Christchurch has its *feretrium* and list of relics. Christchurch of Dublin has record of its amazing relics also. The Danes are a fashion just now. A circular to-day has informed me of the foundation of a "Viking Club" at the King's Weigh-house, Grosvenor-square, with striking titles for its members and officers. For real high ceremonial, I look forward to this interesting society resorting to the ancient and exclusive Danish city of Dublin and to the precincts of the only preserved *Christchurch* of their northmen forefathers.—Yours, &c.,

THOMAS DREW, F.R.I.B.A.

Christchurch, Dublin, January 8, 1894.

* We beg to say that we are not responsible for the mistakes alluded to by Mr. Drew.—ED.

"LONDON STREETS AND BUILDINGS" BILL.

SIR,—In most of the suburban districts of London new roads may be found with houses built and inhabited to some extent, the roadways of which in wet weather are complete quagmires; in dry weather are full of ruts; and in windy weather present clouds of dust, no attempt whatever being made to put or keep them in order. Now that the London County Council are going to Parliament for further powers over roads, it seems a good opportunity to include this subject in their Bill. I would suggest that the local authorities should have power to require persons who have laid out or may hereafter lay out new roads to make up such roads and keep them in repair, and water, light, and cleanse them to the satisfaction of the authorities until the roads are taken over as parish roads.

A LONDONER.

STAINED GLASS AND DESIGNING.

SIR,—In your last issue you describe a painful and extraordinary parturition of a work of art. I refer to the production of the staircase window executed for a house at Rivington, for Mr. A. Pilkington.

From your columns it appears that the "general idea" of the design emanated from Mr. Pilkington himself, who evolved the plan of placing three allegorical figures in a row, an "idea" so very "general" that one can hardly think of it without a yawn.

On this conception sketches were made, not, as might naturally be supposed, by those commissioned to execute the work, but by draughtsmen—"ghosts" in their employ. The sketches, thus circuitously obtained, were then surrendered to the "criticism and corrections of Mr. Pilkington and his architect."

After this, the sketches were "developed" into the full-size cartoons, which, after a like process of revision and corrections, were put into glass.

This art-killing method of patronising the art of glass-painting—which no art could survive—shows how those employed on the occasion were unequal

and personally without share in, the authorship of the work they undertook to produce, and that the design, brought forth under such system—was—*horribile dictu!*—sent ultimately to the Royal Academy exhibition *in the name of the architect!* Comment is needless. Δ

January 3, 1894.

*** We simply gave the facts as communicated to us by the architect. We left it to our readers to make any comment.—ED.

MIDLAND TRUANT SCHOOLS.

SIR,—In the particulars given of the above school in the current issue of the *Builder*, you state that the design carried out was placed first in open competition.

In common justice to myself I trust you will insert a correction of this statement, as the plans marked "Supervision" were placed first by the assessor (Mr. E. R. Robson), and were set aside by the committee in favour of the plans carried out.

RICHARD J. ROWE.

*** The mistake was not our fault.—ED.

ANCIENT OVENS AT WESTMINSTER.

SIR,—I note in your very interesting and refreshing essay upon Westminster Abbey, which commences the New Year's number of the *Builder*, reference made to the old ovens laid open for a short time at the south-west angle of Ashburnham House. I had the privilege of studying this house at the time (in 1882), and recorded one (the only one I saw) upon a measured ground plan I then made, and which was published in the *Builder*, March 14, 1885. As this plan was one of a set of student drawings, and I had heard no other opinion, I queried the oven, but I had no doubt that it was an oven, and I now think it must have been one of those you refer to.

I recorded also upon the plan certain ancient walls I then observed, as well as the plan of the porch or lodge in front of the forecourt, subsequently pulled down to make way for the new railings and piers—which at the time, I recollect, I thought rather a pity.

The essay on the Abbey refers to Ashburnham House as Inigo Jones's. Possibly you do not concur in the view that it is the work of his pupil, J. Webb. In the article on Webb in the "Dictionary of Architecture," I believe it is stated that Webb merely superintended the carrying out of Inigo Jones's designs for the house. But Mr. Papworth, in his "Italian and Renaissance in Great Britain," published in 1883, states that Ashburnham House "is now considered to be by J. Webb." It would be interesting to know the precise grounds for this conclusion, and whether subsequent evidence led to the statement in the volume of the "Dictionary of Architecture," which I fancy was issued after Mr. Papworth published his work.

HARRY SIRR.

BAD BRICKWORK.

SIR,—I beg to enclose you full-sized rough drawings of brickwork now being done with bricks selected by a "committee." The bricklayers ask what they are to do to make proper work? Perhaps Mr. Fleming will answer. Until a proper standard size is insisted on, slipshod work must go on; the skilled workman cannot satisfy himself or his employer, and is in no wise to blame. WILLIAM.

*** The bricks appear to have varied in standard size to an extent which must have made it impossible to produce good work with them.—ED.

PRIME COST.

SIR,—The subject of prime cost was, I supposed, settled in most minds, but "G. W. L.'s" note in your last issue appears to indicate the contrary.

The trades which supply builders have gradually adopted customs different to those existing in any other business. The ordinary system of trade is a monthly account comprising all the transactions up to a certain date of such month; and if paid before a fixed early date in the next month, there is allowed on such payment 2½ per cent. discount for cash. This also is the practice of the trades with which builders deal, but in addition to this discount there is allowed another so-called discount varying from 5 to 60 per cent. The builder has a strong motive to conceal this latter discount from the man who may be dealing with the building accounts; and some firms which supply builders will even descend to the meanness of giving two invoices, one to be produced to the surveyor or architect, in which no trade discount appears, and another for the builder's private use, in which it is allowed. This possibility is provided for in some conditions of contract by a clause which stipulates that not only the invoices, but the receipted monthly statements shall be furnished to the person adjusting the building accounts.

Concealment and subterfuge cannot be justified, but some excuse may be found for the builder, in the practice of some surveyors who appear to forget that the builder does not work for mere amusement, but for a living, and grind every price down to its very lowest possibility.

This is either from ignorance or the desire to carry out the instructions of an architect who has exceeded, from incompetence, heedlessness, or other causes, the amount he was empowered to spend. Such a course is not unfrequently strengthened by a clause in the conditions of contract, making the architect's decision final on all questions. An architect incompetent, or unprincipled, or both, adopts the clause, the unwary builder signs it, as a part of his contract, the architect instructs his surveyor to keep the amount down. This is done: the builder, naturally indignant, appeals to the architect, who shelters himself under the condition, and the nefarious conspiracy is successful.

Another reason for the reticence of the builder about trade discounts is the uncertainty of their destination; not unfrequently the architect takes them. One is familiar with the virtuous indignation of the profession at such an assertion, and with the challenge to produce names for the Royal Institute to deal with. Those who know most are blessed with preternatural wariness and do not respond.*

What are the causes which have combined to produce the present condition? They are various.

The large number of trades whose work enters into a modern structure, puts the builder into the position of a mere agent for its supply, and the arrangements which worked smoothly only a few years ago are now inconvenient; the example of the stoves for a building, for which a sum is generally provided, may illustrate this.

The architect accompanies the builder to a stove merchant and selects a certain number of stoves; the prices named by the salesman are list prices; and besides the ordinary discount for cash these are also subject to a trade discount of 20 or 25 per cent. It depends greatly upon the view the architect may take of legitimate profit whether this trade discount shall be interfered with or not. If there is a stipulation in the specification that the sum provided is "prime cost," and that prime cost means net cost after deduction of trade discount, but not of ordinary discount for cash, it would appear that the adjustment is easily effected, especially if the specification provides that if the builder requires a profit on provisional sums he shall add it to the amount named, when reference to the original estimate will readily show how the sum in question has been treated. When, as is frequently the case, there is no such definition in the specification, it seems reasonable that the net cost at the warehouse and the cost of packing, carriage, and fixing should be ascertained and a reasonable profit added to the total. Some specifications settle what the profit shall be on provisional sums.

The justification of a condition of thing which has no parallel except in the building trade and in the sale of some exceptional things (pianos, sewing machines, bicycles, machinery, and such like), is to be found in the fact that some of the articles bear a much larger discount than others. There, is, moreover, among some manufacturers a keen competition for builders' custom, and a larger trade discount is a means used to attract business.

Printed and illustrated trade lists, with prices attached, are another uncommon feature peculiar to this group of trades.

Let us take, for instance, the trade-list of a great manufacturer of gas-fittings, often well illustrated, and with printed prices which bear a discount of 20 or 25 per cent. These lists are used by builders and retail ironmongers alike to show to their customers, and in the case of the ironmonger the printed prices represent those he would obtain from the purchaser.

Pattern-books of paper are used in a similar manner by builders, retail dealers in paper-hangings, and small decorators, and sometimes involve a trade discount of as much as 40 per cent., but the marked price is that charged to the ordinary buyer.

Some of the larger firms refuse to supply any person who is not in the trade, and in such a case an architect or building owner can only select goods on the builder's order, and such goods are quoted at list prices; but these firms are exceptions.

It will thus be seen that the system has convenience to justify it, but that there is good reason for what may at first sight seem inquisitorial interference with the builder's private affairs.

The majority of surveyors of experience know the trade discount offered by every firm in the kingdom of any note, and they are sufficiently aware of the difficulties which beset the builder's business to allow a reasonable profit on the net cost unless it has been excluded by the builder's deliberate act in his original estimate, which is frequently the case.

The necessity of dealing in this manner with such items as are in question is further justified by the fact that some firms give no trade discount at all. Those who, after giving a trade discount, have attempted to revert to the *ordinary* trade usage of giving none, have met with disaster; but firms who give no trade discount are more plentiful than they were.

The trade system appears to be so firmly established that it is not likely to be altered, but it presents no difficulty to the man who knows his business, and draws his conditions and contract accordingly. Nor does it work badly when in the hands of honourable men. The chief objections to it are the opportunities which the system presents to the cunning man, for various shifts and deceptions; but those business transactions are few which do not offer such opportunities.

The insistance by the builder upon a further discount from the manufacturer who has already allowed it to the building owner or his architect is common enough; indeed, the habit with some contractors is so confirmed that they will even attempt it with the quantity surveyor. The only remedy for this is a certificate direct on the building owner, and some architects pay every provisional sum by such direct certificate.

Much of the trouble incident to the settlement of questions of trade discount may be avoided by specifying articles by the numbers in the trade lists, with the list price, by clearly defining the rate of profit on any article not so specified, and the meaning of prime cost commonly thus:—"The letters P. C., or the words prime cost in this specification shall mean the price at the manufactory after deducting the trade discount, but not the ordinary discount for cash."

In the clause given as an example by your correspondent, the meaning of the word "works" is (I think) ambiguous. It may mean either the works of the manufacturer or the works of the building to be erected. If the former, the word "manufactory" is better.

JOHN LEANING.

28, *John-street, Bedford-row.*

* Then we wish they would. But this cannot be the case with any of the people whom we should call, in the true sense of the word, architects. The practice of making a general charge of this kind, without authenticating any special case, does no good whatever, and is not in very good taste.—ED.

The Stuoent's Column.

THE STRUCTURE AND PHYSICAL PROPERTIES OF BUILDING STONES.—II.

THE term "physical properties," requires a little explanation. Every mineral substance in Nature possesses certain properties relating to hardness, density, porosity, &c., the precise nature of which can only be ascertained by direct experiment. The mineralogist uses some of the results thus obtained to assist him in the classification or determination of mineral species, and for many other philosophical purposes. The geologist and petrologist, dealing particularly with density, studies that property in mineral aggregates, to assist in explaining the origin, and in the classification of rocks. And it may be taken for granted that the causes that have stimulated enquiry into the physical properties of mineral substances generally, when actuated by the devotees of pure science (as distinct from applied science) have always had their origin in the necessities of pure science. It is perfectly possible, therefore, for a scientist to be very learned in the bearings of certain physical aspects of minerals and rocks, and yet to be quite unaware of their value, or practical application.

There is no end to the physical properties of a rock; all, so far as they are known, may be demonstrated by experiment or described; new ones may be discovered by any expermenter conducting inquiry along novel lines; we hope to bring out a few during our present investigations. We would not have the student imagine, however, that we shall explain all the hitherto recognised physical properties of rocks, or even a tithe of them. All we can do is to describe certain of those appertaining to rocks used for building, and which have some interest to the architect. Amongst these, special attention will be drawn to the following:—

a.—Hardness, toughness, brittleness.
b.—Absorptive powers, capillarity.
c.—Penetration of air.
d.—Specific gravity.
e.—Behaviour under varying temperatures.
f.—Strength, compressive and tensile.
g.—Elasticity.
h.—Resistance to abrasive action.

A species of relationship exists between some of these properties, but it is at present very imperfectly understood. If all the results obtained under the various headings had been arrived at by uniform methods, they would be more strictly comparable. We know, however, that hardly any two large series of tests have been worked out in precisely the same manner; and it is on this account that many results on the same material are apparently so divergent.

In dealing with each of the physical properties mentioned, we shall *first* explain the meaning of the term and define its scope; *secondly*, the methods of experimenting (if results are to be arrived at by such methods); and *thirdly*, its practical uses in the present inquiry, and to the architect. The actual results on each stone

examined will not be given in connexion with these preliminary observations, which are merely designed to acquaint the student with the nature and extent of the physical aspects of the work, and to endeavour to lay down an uniform method of procedure.

Hardness.—When we speak of the hardness of a building stone, we have in mind not only the hardness of its mineral aggregates, but their combined effect. Minerals have been divided into ten degrees of hardness, as typified by the following:—1. Talc. 2. Rock-salt. 3. Calc-Spar. 4. Fluor-spar. 5. Apatite. 6. Felspar. 7. Quartz. 8. Topaz. 9. Sapphire. 10. Diamond. Thus if a building stone contained a fair proportion of both 3 and 7 (which it often does) its mineral hardness would, in general terms, be said to be "variable," as distinguished from "uniform." But the hardness of the stone from the mason's point of view depends in a great measure also on the manner in which 3 and 7 are disposed with reference to each other, and on their state of aggregation. If they bind themselves together compactly, the stone would be hard; if not, it might be soft—this with the same mineral constituents. We were about to put down a "scale of hardness" for building stones—it would be very useful—but on second thoughts hesitate lest our object should be misunderstood. We have made one, however, for our own guidance, and find that it corresponds pretty closely with the relative cost of tooling divers of the best-known stones, commencing with a soft jerry-builders' material, and ending with a hard granitic rock. It must not be forgotten that the hardness of a stone varies very considerably after it is quarried. Many stones, when first raised, are so soft that they can be carved or cut with a knife, by reason of their containing so much moisture, or "quarry-water," as it is termed. As this moisture dries out, the stone becomes harder, and may then be said to be in its normal condition for building purposes. It should never be hardened, however, by artificial heating.

The method of ascertaining the hardness of a mineral is easy enough. If, for example, it will scratch felspar, and will not scratch quartz it will have a hardness of between 6 and 7, which would be placed at 6·25, 6·50, or 6·75, according as it approached the felspar or the quartz. To arrive at the hardness of a building stone is also an easy matter, but it is difficult to state it in figures in the absence of standards of comparison. At the present time there is probably no more practical method (rough as it is) than by obtaining the relative cost of working divers stones which, as before remarked, is a fair index of hardness. It is highly probable, however, that more satisfactory results would be arrived at by experimenting with the materials in a planing machine or lathe. In practice there would nearly always be an uncertain element, unless great care were taken—viz., the time elapsed since the material was quarried and the date of the experiment, which, as might be surmised from foregoing observations, is a most important factor. Or, to put it in another way, one would never know how much the quarry water had dried out, and how much of the hardness, therefore, was artificially produced.

The value of the property of hardness is too manifest to need very much comment. Apart from commercial considerations, with which we have nothing to do here, it may be pointed out that where a stone is composed of mineral fragments of varying degrees of hardness it is almost sure to suffer in tooling, and to develop a "starred" surface. Where it has a considerable amount of mineral matter of a hardness of 3, in which pieces of the hardness of 7 are not too plentifully scattered about, it generally behaves very badly under the planer. Suppose a block of crystalline marble (calcite—hardness about 3·5) containing streaks of quartz (hardness 7) is placed on the polishing table, it will be found that the calcite forming the base of the stone will receive the polish long before the quartz streaks or veins, whilst these latter also have a tendency to stand out from the surface of the material. Again, let us place a block of common oolitic limestone (earthy calcite—hardness about 2·65) containing occasional small spots, or concretions, of crystalline calcite (3.5), or quartz (7) under the planing machine; if a fine moulding is in progress we need not wonder that a transverse crack is sometimes developed, owing to the jarring action of the machine against the harder minerals in its endeavours to overcome them. Granite, as the student knows, is made up of three minerals—quartz, felspar, and mica; and each of these is of different hardness. The quartz, as before stated, is 7, felspar 6, and mica about 2·75; anyone who attentively regards the surface of polished granite will be enabled to detect these minerals by the different quality of polish each has taken; the mica, indeed, is rarely polished at all—merely smoothed down. Thus is the uneven polish of granite to be accounted for.

The possession of minerals of widely differing degrees of hardness is not a good feature in a building stone from the point of view of its expanding and contracting properties; this will be fully dealt with in that section relating to the behaviour of stone under varying temperatures.

OBITUARY.

BARON VON HASENAUER.—We regret to announce the death of Baron von Hasenauer the last of that distinguished body of Vienna architects who did so much for the beautification of their city. —He was the youngest of that wonderful corps that was headed by Hansen, Ferstel, and Von Schmidt, and he has unfortunately succumed to his malignant disease before the last building of the imposing series of works which was intrusted to that body has seen its completion. The new "Hofburg" or Royal Palace which has been in course of erection for some years under Professor Hasenauer's able guidance is the last of the series, but its completion is not due until 1900. The learned Professor who died at the age of sixty had always hoped to be spared to see the inauguration of this last important Vienna monument. His last one was the new "Hofburg" Theatre, and prior to that the two Royal Museums, both of which he designed jointly with the late Gottfried Semper. The buildings of the Vienna Exhibition of 1873 were the best examples of provisionary erections. Baron von Hasenauer, a Viennese by birth, received his first technical education at Brunswick, and subsequently studied at the Royal Academy of his native town. He then visited Upper Italy, France, Holland, and the British Isles. In 1854 he was successful in carrying off the first prize for architectural design at his school, and later earned a like distinction at the Viennese Exhibition of 1864. He was placed second in the competition for the façade of the Cathedral at Florence, and third in that for the design of the new Vienna Opera House. The Viennese Academy elected him a member in 1866; the Royal Institute of British Architects made him an honorary corresponding member in 1867; and the Berlin Royal Academy followed suit in 1868, when the holder of these many honours had only reached his thirty-third year. At the time of his death he was the President of the Royal Academy at Vienna, as well as an "Oberbaurath," or Senior Crown Surveyor. Personally "Freiherr" von Hasenauer was one of the most popular architects on the Continent, and a well-known figure in the many competition juries of his time and professional congresses. He always had time for the younger members of the profession, no matter what their purpose or their country may have been, and any intercourse with the kindly figure will always be remembered by those who came in contact with him. We shall treat of his many important works more fully at an early occasion.

GENERAL BUILDING NEWS.

ALTERATIONS, ROYAL ITALIAN OPERA HOUSE, COVENT GARDEN.—The Royal Italian Opera House, Covent Garden, has, since the finish of the Promenade Concerts, undergone various alterations under the supervision of Mr. P. E. Pilditch, of the firm of Messrs. Spencer Chadwick & Pilditch, architects, of 17, Parliament-street. Alterations have been made in the basement and gallery, and precaution has been taken to protect the auditorium from fire. The dressing-rooms have been rendered fire-proof by means of concrete floors and ceilings, with iron doors.

BUILDING TRADE IN EDINBURGH.—At the recent annual dinner of the Edinburgh and Leith Master Builders' Association, says the *Scottish Leader*, the President of the Glasgow Master Masons' Association spoke hopefully of brisk trade and better prices than had been got since the failure of the City of Glasgow Bank, while the President of the Dundee Master Builders' Association spoke in despondent tones of dull trade, keen competition, and working at a loss, through the failure of their staple local industry, the jute trade. The condition of the building trades in Edinburgh and Leith during the past year has stood between these two extremes. The builders have been fairly busy, and all hands were fully employed until recently, when, as is usual at the close of the year, dull trade asserts itself, and idle hands (especially joiners) are to be daily met with. The M'Ewan University Hall, St. Cuthbert's Church, North Merchiston U.P. Church, Craighouse Asylum, Chancelot Co-operative Wholesale Mills, and the railway works at Ravelston, Davidson's Mains, and Cramond, may be said to be out of the builders' hands. A considerable amount of work for the building operatives is indicated by the mention of these and other works in progress, such as the distillery and brewery premises at Georgie-road and Roseburn, the Observatory at Blackford Hill, new board schools at Roseburn and Montpelier, extensive additions to the Deaf and Dumb Institution at Henderson Row, the Church of Scotland Hospital and Mission premises, Pleasance; St. Cuthbert's Church Hall, King's Stables; Caledonian Railway Station; and the Haymarket Tunnel of the North British Railway. During the past year a few villas have been erected, chiefly in the Blackford Hill district, with additions to some of the houses at Murrayfield and Whitehouse Loan. Tenements are also being erected at Viewforth, South Morningside, Dalkeith-road, and in the London-road district. During the coming year the following contracts will fall to be carried out viz.:—The new dock works at Leith just begun, Jenner's buildings, Princes-street; additions to the North British Rubber Works; the new E.U. Church, Dalry-road; the two spires on the east towers of St. Cuthbert's Church; and the spire of Mayfield Free Church. The City Improvements and Destructors are in the not-far-distant future, although they may not give much work for the building trades during 1894.

NEW HALL, SALCOMBE, DEVONSHIRE.—A new building was opened at Salcombe on the 27th ult., for the use of the Men's Bible Class and Institute. The building occupies a central position in Market-street, the front being built of dressed limestone, whilst the windows and door frames are of Bath stone. In the assembly hall the lights are of stained glass. The walls have match-board boarding, 3 ft. 6 in. high, and the roof is an open one with boarded ceiling. Boyle's ventilators are attached to the roof. There is an ante-room leading out from the assembly hall, which, when required, can be added to the main hall. The assembly hall and ante-room combined will seat about 250 persons. On the basement floor is a reading-room. On the opposite side of the entrance passage is a recreation-room, which will also be used as a smoking-room. There is also a kitchen on the basement floor. The building has been erected from plans prepared by Mr. John Wills, architect, Derby. The masonry work has been carried out by M. A. Stumbles, and the carpentery and joinery by Messrs. Cranch & Issel, whilst the plumbing and gasfitting has been done by Mr. F. J. Trute, and the painting and decorating by Messrs. Cook & Chapman.

COTTAGE HOSPITAL, THAMES DITTON.—A new cottage hospital has been opened at Thames Ditton, Surrey, containing three rooms for patients, a nurses' bedroom, bath-room, and water-closet, on the upper floor, and an accident ward, day-room, medical officers' room, kitchen, scullery, &c., on the ground floor, and is arranged for two additional wards to be built if needed. The cost of the building is about 820*l*. Mr. A. J. Style, of Victoria-street, Westminster, is the architect, and Mr. W. Callingham, of Thames Ditton, the contractor.

SANITARY AND ENGINEERING NEWS.

DISPOSAL OF MANUFACTURERS' REFUSE LIQUIDS, DARWEN.—An important Local Government Board Inquiry, affecting the disposal of manufacturers' refuse liquids, was held on the 20th ult., before Mr. Rienzi Walton, M.Inst.C.E., at the Municipal Offices, Darwen, respecting an application by the Darwen Corporation for sanction to borrow 35,000*l*. for a sewerage scheme. Mr. E. A. Parry, Barrister, Manchester, appeared for the Corporation, and several paper-mill owners were also represented, with the view of forcing the Corporation to take the paper-makers' refuse liquors, which is estimated at two million gallons daily, into the sewers, the scheme formulated by the Corporation being designed to purify only the town sewage, which amounts to about one million gallons per twenty-four hours. Mr. Stubbs, the Borough Surveyor, stated that the system decided upon was that known as the International; the sewage to be treated with ferozone, in six precipitation tanks, and subsequently filtered through beds of polarite, of which there would be twelve in number. Mr. Frank Candy, Managing Director of the International Company, was called to explain the system of purification to be adopted, and gave it as his opinion that there would be no difficulty in treating the paper-makers' refuse, but confirmed the Borough Engineer's statement that it would be more economical to deal with it separately. Dr. C. A. Burghardt, Ph.D.F.M.S., of Owen College, Manchester, was called on behalf of the Corporation, and stated that in his opinion the paper-makers' refuse would be injurious to the sewers, causing offensive gases to be generated, unless the refuse were first treated at the paper works to render the liquors neutral, or, preferably, slightly acid. In cross-examination, Dr. Burghardt stated that with suitable previous treatment of this mill refuse, the polarite beds would be capable of purifying the mill refuse and sewage combined. Mr. Sutton, who addressed the Inspector on behalf of the paper manufacturers, contended that the manufacturers' refuse must be admitted into the sewers, and said that this was one of the most important occasions upon which a Local Government Board Inspector had come into Lancashire. Upon the decision of the Local Government Board in this case hung issues which, he ventured to say, were most far-reaching to the trade of Lancashire; and, whatever the decision, it would have a most

important effect on manufacturers throughout the district. Mr. Parry, on behalf of the Corporation, said that, if Mr. Sutton were right, why did he not get a mandamus at once, and compel the Corporation to take the effluent into their sewers? He asked the Inspector to report to the Local Government Board that there was no one who had given evidence to prove their right to make use of the sewer, if there were a sewer into which paper-makers could turn their effluent. The inquiry, which lasted for nearly seven hours, then terminated.

MELTON MOWBRAY. — The Melton Mowbray Local Board have decided to adopt the international system for the purification of their sewage, and have instructed Mr. Edmund Jeeves, C.E., Architect and Surveyor, of Melton Mowbray, to prepare plans for the works.

WATER SUPPLY WORKS, BIDEFORD.—It was recently announced that the supplemental reservoir constructed by the Bideford Town Council was being filled. Four filter-beds complete the scheme for rendering Bideford water-supply above reproach, and these, says the *Western Morning News*, are now ready for use. There is capacity in the two reservoirs for at least 25,000,000 gals., and the storage at present is over 20,000,000 gals. The overflow from the new or upper reservoir is ample for the winter needs of the town, but in addition four or five springs have been captured by the contractors while constructing the dam and bywash, and these in great part may be claimed as extra water. All the work has been executed by Messrs. Perrin & Long, through their representative Mr. H. Flitton, Messrs. H. Tardrew & Son, Bideford, being responsible for the ironwork. The new reservoir has a capacity of 10½ million gals., and is about 40 ft. higher than the old reservoir. A concrete bywash for the overflow to the lower reservoir has about 40 steps of varying height. At the foot of the lower reservoir are the filter-beds, each being 30 ft. by 30 ft. The depth of filtering material is 5 ft., and consists of four layers of different kinds of gravel, with 3 ft. of sand on the surface. All the gravel came from Spratridge, Appledore, and the sand from just inside Bideford Bar. There are 600 tons of sand and 200 tons of gravel in the beds, for the walls and floors of which 200 tons of cement and over 300 tons of stone, gravel, &c., were required. The cost of the reservoir has been over 5,000*l.*, and of the filter-beds 1,113*l.* Mr. Baldwin Latham, C.E., has charge of the scheme. The resident engineer is Mr. A. J. Jenkins.

THE SEWERAGE QUESTIONS IN COPENHAGEN. —Two of the questions uppermost in the public mind in Copenhagen at the present moment are the disposal of the fæcal matter and the sewage, the latter being distinct from the former, in which respects the Danish capital leaves much to be desired, like nearly all Continental cities, and the leading sanitary and engineering organ, the *Ingenior* has of late devoted much space to these important subjects. A proposal, supported by several leading sanitary engineers, is the introduction of water-closets on English principles, the annual cost of maintenance of this system for the whole city being estimated at about 12,000*l.*, the daily consumption of water being 40,000 barrels (5·6 million litres) a day at 1s. 4d. per 100 barrels. Each flushing is estimated to consume 16 litres (3·1 gallons) of water. On the other hand, a well-known sanitary engineer, Herr C. Schönheyder maintains that this estimate is far too low, and that if water-closets are to be introduced, water-meters would unquestionably be required in order to arrest waste, and that the cost and maintenance of 8,000 of the same would be no less than 4,450*l.* a year alone. Moreover, he considers that the installation of a water-closet is far more expensive than that of a poudrette closet. He estimates the cost of each closet at 4*l.*, and the total installation for 30,000 water-closets at about 117,000*l.* And allowing 10 per cent. of this sum for the annual maintenance and interest on capital, there is an additional expenditure of 11,700*l.* a year. He estimates the total cost of the introduction and maintenance of the water-closet system in Copenhagen at 27,200*l.*, as against the first estimate of 12,000*l.* Another proposal is the erection by a private firm of *entrepreneurs* of a fæcal factory for turning the latrine into poudrette by a method similar to that of Podewil, recently described in the *Builder*, and which is working so successfully in Augsburg, but as the firm in question demand a subsidy of 30,000*l.* a year to carry out this scheme and the cost of the present system is only 14,000*l.* a year, there is little prospect of this proposal being accepted. The *entrepreneurs* offer to pay the Municipality 1,700*l.* a year out of this amount, but of course this and the former sum would come out of the taxpayers' pockets, hence the objection to the scheme. On the other hand, the farmers around Copenhagen are most anxious to retain the existing system, whereby they obtain the raw and unadulterated latrine for manure at a reasonable price, as they maintain that the poudrette manufactured as suggested is not nearly so effective for fertilising purposes. Formerly the price was 25 öre (4d.) per barrel (140 litres), but when the Copenhagen Renovation Company was formed some years ago, the price was raised to 50 öre (6d.) per barrel, and this high price reduced the sale of the latrine to a great extent. Another great drawback to the present system is also that the latrine must be removed within certain fixed hours in the early morning, an arrangement for which the company has not sufficient material. It is, therefore, proposed that two or three light railways should be built from the city into the neighbouring agricultural centres by which the latrine could be rapidly conveyed out of the city. The rapid conveyance out of the city of the fæcal product is one of the chief points under consideration, in view of the recent threatened cholera epidemics. The cars for these railways would be specially constructed for the object in view. Meetings of farmers, &c., have been held around Copenhagen in order to retain the present system with the railways suggested, the most important being one in the island of Amager, where are situated the extensive market-gardens of Copenhagen, at which it was decided to petition the municipality to carry out these suggestions, the farmers undertaking to take all the fæcal matter from the city up to the year 1900. Probably the price of the same will be reduced a little. Another equally important question now on the *tapis* is the disposal of the sewage in Copenhagen. At present, all waste and slop water is carried away through mains from the houses, and emptied into the harbour, a most dangerous arrangement, it is admitted on all sides, from a sanitary point of view. The city engineer, Herr Ambt, now proposes to cut all these mains by a great transverse one close to the harbour, through which the sewage would be carried out into the Sound, on the other side of the Island of Amager. It is pointed out that the sewage water, being lighter than sea water, floats on the surface, rendering the state of the harbour most dangerous, particularly with southern winds and tides, whereas in rivers the two kinds of water commingle easily. Herr Zarrtmann, a well-known sanitary engineer, however, opposes the scheme of the city engineer, unless the main referred to be carried much further out to sea than proposed. His idea is to commingle thoroughly the sewage and the sea waters by sinking wells at the mouths of the existing sewage mains, and by turbines driven with electricity pump up sea-water from the bottom to mix with the sewage water. This would increase the volume and gravity of the latter, and thus render it harmless, His principal advocacy of this elaborate arrangement is based on its cheapness, as compared with the costly one proposed by the city engineer. Whatever will be the result of these deliberations, it is admitted on all sides that the immediate settlement of the fæcal and sewage questions in Copenhagen is urgently demanded.

ELECTRICAL SANITATION AT WORTHING.—The Town Council of Worthing have voted a considerable sum of money to enable M. Hermite, the celebrated French Sanitary Engineer, whose method has proved so successful at Hâvre, Lorient, &c., to get to work during the present month to demonstrate the efficiency of his system of sewage disinfection, by means of electrolysed sea-water, for the first time in an English town.

FILTRATION WORKS, MANCHESTER.—We are informed that the tender of Mr. Geo. Bell, Tottenham, London, for the works of the filtration area for the Manchester Corporation at Davyhulme has been accepted. The work consists of about 100,000 cube yds. of excavation, twenty miles of piping, and a large quantity of Portland cement concrete, and other works. The works have to be completed in four months.

DRAINAGE SCHEME FOR BRIERLEY HILL.—At a recent meeting of the Brierley Hill Local Board a comprehensive drainage scheme was submitted by Mr. J. Edward Wilcox, C.E., of Birmingham. At present the sewerage on the north side of the town is taken beneath the railway in a culvert, and flows down what was till lately an open brook course to the outfall works, which consist of settling-tanks and strainers, the sewage passing upwards and downwards through beds of gravel and coke or charcoal, and the effluent flowing direct to the canal, the arm or basin into which it formerly discharged having been lately filled up, owing to the nuisance arising therefrom. On the south side the whole of the sewage flows direct to the canal or under it to the stream below, there being no treatment of any of the sewage on this side of the district. In order to utilise the existing sewers it would be necessary to construct very large and very costly outfall and intercepting sewers, and Mr. Wilcox, therefore, recommended that the existing sewers be abandoned for sewage purposes, but retained for the conveyance of surface water to the canals, and a new system of small pipe sewers with self-cleansing gradients be put down for sewage purposes only. These will cost no more than the large intercepting and outfall sewers, and the expenditure at the sewage disposal works will be very largely reduced, both as to initial cost and annual expenditure. If the Board should decide to deal with their own sewage, he recommended the adoption of the International system, as the land treatment was out of the question.

THE SHAP GRANITE AND PATENT CONCRETE CO.—In a paragraph last week in which we mentioned the productions of this firm, and its London agents, Messrs. E. J. Van Praagh & Co., the name was given as the "Glass Granite," &c., Co. by a printer's error which escaped notice. The correct title of the company is as above.

FOREIGN AND COLONIAL.

FRANCE.—M. Puvis de Chavannes has been re-elected President of the Société Nationale des Beaux-Arts; the two Vice-Presidents, MM. Carolus Duran and Rodin, have also been re-elected. M. Waltner has been elected one of the Vice-Presidents in place of M. Bracquemond (resigned), and M. Cazin is the Vice-President of the section of Decorative Art. MM. Jean Beraud and Billotte, the Secretaries, and M. Dubufe, the Treasurer, have retained their positions.——A new intercepting sewer, called the "Egout de Clichy," is to be made in connexion with the Paris Drainage System; a vote of 5,600,000 francs having been made for the work. The sewer will start from the Quai de la Tournelle and end near the pumping station at Clichy, passing by the Place de la Concorde, Rue d'Amsterdam, Place Moncey, Avenue de Clichy and Boulevard National.——The exhibition of painting and sculpture of the Cercle Volney has just opened, and is to close on February 22.——M. Ginain, the architect of the Musée Galliéra (illustrated in the *Builder* last week) has been created an officer of the Legion of Honour.—A monument is to be raised by subscription to the memory of César Franck, the organist and composer, who died two years ago.——The Chamber of Deputies has before it a project for a strategic railway from Fayet to Chamounix and thence to the Swiss frontier.——The Russian visitors who usually winter at Cannes, have founded a Russian church there, on the Boulevard Nôtre Dame des Pirs. ——The French Government has commissioned M. Guillaume, the director of the Académie de France at Rome, to direct the restoration of the frescos in the church of "St. Louis des Français" at Rome. It is announced that this work is now completed. The paintiogs "restored" were the work of Domenichino.——M. Rochet, architect, of the Department of "Assistance Publique," has just completed a new hospital at Epernay, built at the expense of M. Au'ban Moët, the well-known champagne merchant. It has cost about 3 million francs. ——The death is announced of M. Petit, architect, the father of M. Albert Petit, architect to the Versailles Palace. ——M. Chartran, the painter, has commenced a portrait of the President of the Republic for the next *Salon*.

DENMARK.—Of the 3,000,000 Kr. voted by the Municipality of Copenhagen for the new Town Hall a sum of 800,000 Kr. is to be expended during the current year.——A sum of 350,000 Kr. has also been voted for the new prison-house in Copenhagen, being the balance of the estimated cost, viz.: 1,350,000 Kr. This building is now fast approaching completion. There will be about 600 cells, all constructed on the most modern system. They measure 12 ft. in length and 6 ft. in width, with a separate water-closet to each. They are well ventilated and heated, and the windows much larger than in ordinary prisons. The building is surrounded by a 20-ft. brick wall. This prison is only intended for male offenders, but a similar one is to be erected on the same site for female prisoners. It is expected that the building will be completed by the end of 1895, when the prison at Christianshaven will be closed. The architect is the well-known Professor Fenger, and the cost of the structure complete is estimated at about 6,000,000 Kr.——The vestibule of the Museum of Art and Industry, Copenhagen, is to be decorated with eighteen columns of polished marble, executed at the Mechanical Stone-Cutting Works, Copenhagen, in different colours.——We mentioned some while ago that a wealthy Dane residing abroad had offered to pay the cost of gilding the dome of the great new "Marble Church" in Copenhagen, and this work has now been commenced. The statues at the entrance are also now being mounted. In the interior one half of the mosaic floor has been finished, and the heating apparatus is now being installed. The models of the two great bronze statues for the exterior have been cast in plaster, the sculptors being Professors Stein and Bissen, and the working drawings for the altar are likewise completed. Every effort is being made to have the edifice ready for service by next Whit Sunday.——The new Glyptothek in Copenhagen, an art gallery presented to the town by Herr Carl Jacobsen, is approaching completion.——The Danish House of Parliament was partly redecorated, and the heating apparatus greatly improved last autumn.——An industrial and crafts exhibition has been held in the town of Kjöge, and an electrical one in the town of Odense.——A new communal hospital has been completed in the town of Aarhus, at a cost of 400,000 Kr. It is suitably situated on a hill overlooking the town, and is said to be the most perfect hospital in Denmark. There are two isolated buildings for epidemic cases. In the basement of the main building there are public baths. The architect and builder is Herr Arboe.——A new church has been erected in the town of Lögstör by Herr Momme and Herr Olesen, architects. The style is Gothic, and the material used red bricks. The cost has been 55,000 Kr., the site being free. The height is 150 ft.——The old "Raadhus," or Town Hall, in Næstved is being restored at a cost of 5,600 Kr. The oldest portion dates from the twelfth century, but other parts are only about 200 years old. Some paintings and escutcheons in chalk have come to light.——Two great engineering works have just been completed in the Danish

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*School, Everton	Liverpool Sch. Bd.	150*l.* 50*l.*	Mar. 3
*Sewerage Scheme	Rotherham Corp.		Mar. 25

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Rowley Ragstone	West Bromwich Union	*Official*	Jan. 16
Cast-iron Water Pipes	Watford Local Board	do.	do.
*Granite Kerb	East Ham Local Board	— Savage	do.
Reading and Assembly Rooms, Weaste, Salford		Borough Engineer	do.
Distillery Buildings, Warehouse, &c. Longmorn, near Elgin		C. C. Doig	do.
Flagging, &c. Pearson-road	Plymouth Corp.	Jas. Paton	do.
Wing to Manor Hotel, Lidford, Devon	Ward & Chowen		do.
Water Supply, Wotton-under-Edge	Dursley U.R.S.A.	A. P. J. Cotterell	Jan. 17
Sewage Tanks, Filter Beds, &c.	Alcester R.S.A.	E. Pritchard	do.
Chapel, Walmer Bridge, Lancs.	Primitive Methodist Connexion	W. H. Dinsley	do.
Engine House and Tank	Kidderminster Corp.	A. Comber	do.
Sewerage Work, Shay-lane, Ovenden	Halifax Corporation	E. R. S. Escott	do.
*Sound Hewn Die Square	LondonCountyCouncil	*Official*	do.
*Tooled Yorkshire Paving	Vestry of St. Matthew, Bethnal Green	F. W. Barratt	Jan. 18
Sewer, &c. Compton-passage and Allen-street	Clerkenwell Vestry	*Official*	do.
*Five Houses, &c. for Coast Guards, Felixstowe	Admiralty	do.	Jan. 19
Station Buildings, Dunmurry	G. N. R. Co. (Ireland)	do.	Jan. 20
*Convertible Tables and Benches	Strood Union	G. E. Bond	Jan. 21
Isolation Hospital, Parkside Asylum, Macclesfield		Stanhope Bull	Jan. 22
*Cast-iron Water Mains	Hastings R.S.A.	Jeffery & Skiller	do.
Additions to Holy Trinity Schools, Weymouth		Crickmay & Sons	do.
Drainage Works, Springfield-road, &c.	Hastings R.S.A.	*Official*	do.
Family House, St. Andrew-street	Glasgow Impt. Trust.	do.	do.
School of Art	Dover Town Council	do.	do.
*Paving New Streets	Camberwell Vestry	do.	do.
Street-making	Runcorn Impt. Com.	do.	Jan. 23
Flags, Kerbs, &c.	Bury (Lancs.) Corp.	do.	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Engine Shed, &c. Grimskirk	L. & Y. Ry. Co.	*Official*	Jan. 22
School Buildings, Drax, Yorks		H. B. Thorp	do.
Residence, Heathwaite Estate, Bowness, Windermere		S. Shaw	Jan. 24
Reservoirs, &c.	Shepton Mallet Waterworks Co.	*Official*	do.
Granite Lumps (250 tons)	Poplar Union	do.	do.
*Public Library Buildings	Walthamstow L.B.	J. W. Dunford	do.
Intercepting Sewers (2,445 yds.)	Manchester Corp.	J. Allison	Jan. 25
Sewer, Caldecott-street and Hillmorton-road	Rugby Local Board	J. H. Brierley	do.
*Works and Materials	Chelsea Vestry	T. W. E. Higgens	do.
*Waterworks	Marlborough T. C.	*Official*	Jan. 26
Piers, Stroma and near Dunnet	Caithness C.C.	Jas. Barron	Jan. 27
Church and Schools, Barrackton, Cork	Methodist United Buildings Committee	R. Walker	Jan. 29
*Removal of Albion Hotel	Ramsgate Corporation	*Official*	do.
*Laying-out, Enclosing, &c. New Cemetery	Walton-on-Thames Burial Board	W. F. Vinter	do.
Street Works, Andrew-place, &c.	West Hartlepool Corp.	J. W. Brown	Jan. 30
Coastguard Station, Waterville, Co. Kerry	Office of Works, Dublin	*Official*	do.
*Police Station, &c. Horsham	West Sussex Joint Com.	do.	Jan. 31
Showroom and Workshop	Manchester Corp.	do.	do.
*Higher Grade School	Salford School Board	Woodhouse & Willoughby	Feb. 5.
Police Station, &c. Cradley, near Birmingham	Standing Joint Com.	H. Rowe	Feb. 9
Nineteen Houses, Queen's-road, Sheffield		E. Winder, Junior	No date
*Buildings on Esplanade	Sidmouth Baths Co. Ltd.	R. C. Murray	do.
*Cases, &c. for Museum	NorwichCastle Museum	E. Boardman & Son	do.
*Additions to Hall, Green's Norton		C. Dorman	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Clerk of Works	Cambridge T.C.	4*l.* 4*s.*	Jan. 15
*Foreman, Kingston, Jamaica	Agents for Colonies	300*l.*	Jan. 20
*Building Inspector	Willesden Local Board	150*l.*	Jan. 23

Those marked with an Asterisk (*) are advertised in this number. *Competitions, p.* iv. *Contracts, pp.* iv., vi. *and* viii. *Public Appointments, pp.* xviii. *and* xxi.

possessions, viz., a first-class lighthouse, 220 ft. in height, built of granite, and seen for thirty miles at the southernmost point of Færö Islands, in the North Atlantic; and a breakwater at Rönne, in the Island of Bornholm, in the Baltic. The cost of the latter is about 240,000 Kr. It will form the only harbour in that remote island. *Apropos* of this island, it may be of interest to mention that the authorities of the Danish National Museum have caused the ruin of the old historical castle, Hammershus, to be excavated. The foundations of the chapel were laid bare last summer. It is 45 ft. in length and 22 ft. in width, the height within, it is estimated, having been 15 ft. The outer walls were of granite. There appears to have been three vaulted or arched roofs, resting on eight pillars. As the roof only fell in in the middle of last century, these details could easily be ascertained. On the stucco of the eastern wall were found faint traces of coloured decorations. The floor had been laid with tiles, likewise that of the great hall above the chapel. The roof tiles bear the mark of the maker. The courtyard was laid with large granite slabs. The ruins have been carefully measured, and the work of excavation will be continued next summer. An association has been formed in the island for the establishment of a museum of insular antiquities from the Stone, Bronze, and Iron Ages.——The excavations of the ruins of another historical castle, Vordingborg, were also continued last year, whilst excavations are to be carried out next summer around the Cathedral of Ribe in Jutland.——Subscriptions are being raised in Copenhagen for the erection of a statue to King Christian IV., the most popular of Danish kings. Some 30,000 Kr. are required. —— The Norwegian sculptor, Stephan Sinding, is engaged in a part of the Museum of Arts, Copenhagen, in modelling the colossal allegorical group which is to ornament the top of the façade of the new premises of the Great Northern Telegraph Company's head offices in Copenhagen. It will be cast in bronze in Berlin.

BERNE.—Another new bridge is to be erected over the Aar, which in this case will have a length of 380 mètres, or about 415 yards. The design of this bridge has been the subject of much local controversy, as one part of the townsfolk wished to have an iron structure; the others preferred a stone one, on account of a distrust in iron, fostered by the disastrous bridge accident near Basle some two years back. The city board of works now proposes a combination of the two materials, and recommends a design by Messrs. Probst & Co. The plans of this firm show iron girders or iron arches on piers of masonry. The three iron arches they suggest have together a span of about 191 mètres, or 626 ft., the four girders together 138 mètres, or 453 ft., whilst the remaining length is in stone. The cost is estimated at about 180,000 fr., or 7,200*l.* The engineers who designed the bridge have tendered to carry out the work for a little over this sum.

BERLIN.—The question of adding a number of suburbs to the present area of the city has been discussed, and there is every reason to expect that there will soon be a "Greater Berlin," not dissimllar to the Greater Vienna of 1892.——The proposed scheme for an Electric Metropolitan Elevated Railroad has been passed and only awaits the arrangement of the minor details.——A number of street improvements have been made, among the most important are the reopening of the "Mühlendamm" artery with its bridges over the Spree, and the demolition of the blocks on the "Schlossfreiheit," which are to make room for the National Monument. Among the works of this kind to be taken in hand at once is the rebuilding of the "Gertraudtenstrasse." The widening of the Königstrasse is under discussion.——Of parks opened during the year we may mention the Victoria Park near the historical Kreuzberg. This park is remarkable for its elaborate artificial grottos and waterfalls.——Of the open spaces which have been remodelled there is the "Schillerplatz" in front of the Court play-house.——The great event for Berlin's sanitary engineers was the opening of the "Müggelsee" Waterworks and the closing of the old ones at Stralau.——The Victualling of the City has been facilitated by the opening of some extensive wholesale agricultural produce market halls.——The erection of a fourth municipal hospital has been decided upon and will be taken in hand at once, and the Municipal Children's Hospital was enlarged during 1893.——The disposal of the street and house refuse has been under discussion, and a Special Commission has been elected to visit the different capitals.——Not a single piece of municipal architecture has been completed during the year, but several monumental works have been discussed, and will probably soon be commenced, *i.e.*, the proposed new local museum and the large block of administrative offices, which is to be an extension of the Town Hall.

MISCELLANEOUS.

THE SMOKE DIFFICULTY.—We learn that a very substantial sum, extending to six figures, has been offered for the American rights in "Elliott's Smoke and Fumes Annihilator," the successful demonstration of which, at the Birmingham Mint, a week or two ago, and previously on the Thames Embankment, has already been referred to in our columns.

THE CHAPEL ON WAKEFIELD BRIDGE.—A movement is on foot in Wakefield, says the *Leeds Mercury*, to restore the unique monument of ancient ecclesiastical art called the Chantry, which is built on Wakefield Bridge. This old chapel is somewhat of a national curiosity, as there are only two more of the kind in the kingdom, one of them at Rotherham. Two of the buttresses were blown down during the recent gale, and this fact drew general attention to its dilapidated condition. For years past, however, there has been a great desire on the part of several local gentlemen to restore the chapel to something like its original condition. It was restored in 1847 at a cost of nearly 3,000*l.*, with rather unfortunate results. The material used was not the best for the air of the district. The sides were magnesian limestone from near Milford, but the front was Bath stone, with figures of Caen stone, neither of which resisted the wasting action of the impurities of the air. In about twenty years it was in parts, especially the pinnacles and battlements, almost as badly out of repair as it was before the restoration. The chapel measures inside only 41 ft. long, of which the chancel occupies 14 ft., and 17 ft. wide. The outside measures each way about 7 ft. more. The style is Decorated, and much beautiful diapering and tracery ornament the wall. The front is divided into five compartments, the lower portions having crocketted canopies over the several spaces, four of which are niches in the form of the door which makes the fifth. In the upper portion of the front there are small stone figures representing the annunciation of the birth of Christ, His birth, His ressurrection, His ascension, and the descent of the Holy Ghost upon His disciples. A winding-stair at the north-east leads to the roof, and ends in a small bell tower; downwards it conducts to a small crypt, out of which there used to open a doorway leading to the priest's house, opening on the chapel island. The crypt across the east end measures 12 ft. 8 in. The base of the building is made narrow and wedge-shaped, and worked into a pier of the bridge, so as to offer little resistance to the stream. The date of the original foundation of the chapel is a matter of uncertainty. When it was restored in 1847, the old front was taken to Kettlethorpe Hall, near Sandal. Within the last few years the bell turret and the two side parapets were restored, the contractors being Messrs. Denholm & Co. The sculptured front, however, is still a blurred mass of crumbling stone, which has never been proof against the gases coming from the chemical works, and the effluvium from the river. It is believed that between 700*l.* and 800*l.* would cover the cost of the restoration.

THE SSOLODUCHIN POUDRETTE FACTORY, ST. PETERSBURG.—One day last month M. G. A. Ssoloduchin invited the civic authorities of St. Petersburg to inspect his poudrette factory in the Ssensenow-place. The poudrette is manufactured by this process from fæcal matter on principles somewhat similar to those followed in the Podewil process recently described in the *Builder*, but Ssoloduchin's factory has been in operation since 1875. The factory receives all the fæcal matter from the barracks of the Life Guards, as well as from a gymnasium, and manufactures it into manure, the former being pumped through mains into the factory. It is now Ssoloduchin's plan to attempt the extension of this system to the whole of St. Petersburg should the Municipal Authorities approve of the scheme; but, of course, the existing small factory would not suffice for the treatment of such quantities. The scheme would be carried out somewhat on the principles of the Lienur method, adopted in certain Dutch towns. The present factory is only capable of treating dry fæcal matter, whereas for the whole of the city there would also be a quantity of waste water to be dealt with. The illustrations of the process carried out before the Municipal Authorities were very successful. In the course of twelve minutes 450 cubic feet of fæcal matter was by pneumatic methods pumped into a reservoir, whereupon it was passed through pipes and boilers in which heated cylinders are fixed, and in the short space of ten minutes the entire mass had

been transformed into first-class poudrette manure. The Municipal Authorities of St. Petersburg are seriously considering the question of dealing in an effective manner with the fæcal matter of the city by a dry or poudrette system, a reform more and more urgently demanded year by year. As is well-known, few cities in Europe possess worse sanitary arrangements than St. Petersburg, and as high a death-rate.

NATIONAL BUILDING TRADES' EXHIBITION.—We are informed that spaces for exhibitors at the National Building Trades' Exhibition, which will be held in the Agricultural Hall, Islington, are letting rapidly, and that the Exhibition is likely to prove a great success. The names published of the Consultative Council seem a guarantee of success, unless, indeed, the word "consultative" is a misnomer, and the Council is not often to be consulted—a thing not unheard of in modern days. The Exhibition will remain open from Friday, March 16, to March 31.

THE SURVEYORS' INSTITUTION.—At an ordinary general meeting of the members of this Institution, held on the 8th inst., at Great George-street, Westminster, Mr. Daniel Watney (vice-President) in the chair, Mr. E. J. Harper read a paper on "Trade Claims." Having pointed it out as a singular fact that nowhere in the Lands Clauses Consolidation Act did the word "trade" appear, he said that all compensation claims for trade loss (except those made under Michael Angelo Taylor's Act or by yearly tenants) arose under section 18 of the Lands Clauses Act, the last few words of which formed a basis upon which a proper amount of compensation could be determined. It was evident from the outset that every claim for trade loss must be treated on its own merits. Most of them were aware that in the series of Artisans' Dwellings Acts, initiated by Lord Cross and dating from 1875, there was no specific provision on which claims for trade damage could be based. Sir H. A. Hunt, the standing arbitrator under the first scheme, was in doubt on the point, but he ultimately decided to allow trade compensation upon a limited scale, leaving to the Board the option of appealing to the High Court. As with the Lands Clauses Act so with the Artisans' Dwelling and Housing Acts. No hard-and-fast rule could be laid down, but judgment and experience must decide the merits of each case. It was, however, abundantly clear that the scale of trade compensation hitherto adopted under the latter Acts was very much lower than under the former.

BUILDING TRADES' CONVERSAZIONE, POLYTECHNIC YOUNG MEN'S CHRISTIAN INSTITUTE.—On Monday Sir Owen Roberts distributed the prizes to the students of the Building Trades' section of the Polytechnic, Regent-street, W. Sir Owen Roberts said in past years technical instruction and education in science had been far too limited, but in later years institutions had sprung up, and he took a great interest in these institutions, which were not only training classes, but also a focus around which young men gathered and found themselves in the midst of friends. The number of apprentices in the building trades was not sufficient to supply its requirements. Therefore men were drawn from the provinces. The report stated that the number of students who entered from the last week in October to December was 7,000, of whom 700 joined the building section, including plumbing, construction, practical bricklaying, carpentry, and quantity estimating. The number of entries this year showed a considerable advance over last year. In addition to the various lectures there are workshops for each subject, the subjects being restricted to young men already engaged in the trade. During the last six years 644 students have satisfied the examining body of South Kensington, and 199 students have passed the examinations of the examining body of the City Guilds of London in carpentry and joinery since the examinations commenced. At the Clerk of Works examinations conducted by the examining body of the Carpenters' Company, the students have been successful in obtaining one gold, one silver, and two bronze medals. Four members of the classes have been successful by examination in obtaining the posts of assistant surveyor in the Royal Engineers and Prison Boards Department. A number have also passed the qualifying examination for sanitary inspectors held at the Sanitary Institute. Mr. Charles F. Mitchell and Mr. J. K. Clarke briefly introduced the different sections who were receiving prizes.

SANITARY APPLIANCES.—We have received from Mr. George Jennings his supplementary catalogue of water-closet apparatus, illustrated with large sections to a scale of one eighth full size, fully explaining the action of the apparatus, with the double flush which he has contrived, one flush for clearing out the pan, the other vertically into the lower trap, clearing it out simultaneously and starting the syphon which empties the pan through the upper trap. The pans are all designed so as to keep 3 in. depth of water in them. This is one of the most efficient closets, for thorough flushing and for prevention of ingress of drain air, which has been devised; but it is important to notice, now that the question of amount of water supply to closets is being discussed a good deal, that it imperatively requires a good supply of water; in fact, it is impossible to work a really efficient water-closet properly with the limitation of flush at present legally imposed, but fortunately often evaded.

MEETINGS.

SATURDAY, JANUARY 13.

Northern Architectural Association. — Visit to the Chillingham-road Board Schools, at 3.0 p.m., when the Heating and Ventilating Apparatus, "Plenum System," will be in operation.

Queen's College, Cork.—First of a course of lectures on the "History of Architecture," by Mr. Arthur Hill. 3 p.m.

MONDAY, JANUARY 15.

London Institution.—Mr. C. F. Binns on "Pottery and Porcelain." 5 p.m.

Liverpool Architectural Society.—Mr. W. H. Bidlake, M.A., on "Imagination in Planning." 6.30 p.m.

TUESDAY, JANUARY 16.

Institution of Civil Engineers.—Further discussion on Mr. R. E. Comman's paper on "The Concentration and Sizing of Crushed Minerals." 8 p.m.

Surveyors' Institution.—(Meeting of Examiners and Students).—Mr. W. C. Dendy on "Sanitation of Dwelling-houses." 7 p.m.

WEDNESDAY, JANUARY 17.

British Archæological Association.—(1) The Rev. J. Cave Browne, M.A., on "Leeds and Bromfield Parishes, Kent"; (2) Mr. Harry Sheraton on "Segontium (Carnarvon)." 8 p.m.

Society of Arts.—Mr. A. Laurie, M.A., on "White Lead Substitutes." 8 p.m.

Builders' Foremen and Clerks of Works' Institution.—Annual Meeting. 8.30 p.m.

Northern Architectural Association. — Mr. H. W. Bacon on "Stained Glass in relation to Architecture." 7.30 p.m.

THURSDAY, JANUARY 18.

Society of Antiquaries.—8.30 p.m.

Society of Arts (Indian Section).—Mr. R. D. Oldham on "The Petroleum Fields of India: their Present Condition and their Probable Future." 8.30 p.m.

FRIDAY, JANUARY 19.

Architectural Association.—Mr. J. Daymond on "Wood Carving"—practically illustrated. 7.30 p.m.

Institution of Civil Engineers (Students' Meeting).—Mr. William G. Wales on "Discharging and Storing Grain." 7.30 p.m.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

22,004.—ARTIFICIAL BUILDING MATERIALS: *F. W. Lührmann* (Dusseldorf).—The refractory substance which has so long been a trouble in iron-producing—blast furnace slag—is utilised in the manufacture of building materials. According to the nature of the slag, other materials are mixed with it; thus, if it is deficient in lime, this is added; clay quartz, oxide of iron, and many other substances, are also added if found necessary. Cements, paving stones, building blocks, &c., are made in the material.

2,671.—IMPROVED BRICK: *J. Mohlberg.*—A brick to be used for the interior decorations of buildings, and especially for fireplaces, walls, &c., in which one side or the face of the brick is glazed, while the other sides remain unglazed. The bricks are jointed without the use of mortar at the joint, and for this purpose the invention consists of a brick for interior work which is provided with openings extending through the body of it with projections and recesses arranged so that the bricks can be dovetailed into each other without mortar being used.

2,880.—SHEET METAL ROOFING: *C. Thomerson.*—The front edge of each sheet of roofing is bent at an angle or in the form of a beaded or welted edge, the sides of the sheet are then bent up at an angle so that a corner piece is produced inclined or curved from the front of the sheet.

18,820.—HINGED DOORS, &c.: *F. De Sales.*—For doors hung in pairs a modification of the butt hinge is used which does away with the hanging style, and affords greater facility and security.

20,446.—ROOFING TILE, &c.: *A. Schmidt.*—Has for its object an improved roofing tile which affords a thoroughly dust and water-tight roof, and renders possible a certain and reliable fastening of the separate tiles to the roof framing. The novelty consists in the overlapping parts of the tiles being provided with rounded grooves and projections and in the arrangement of overlapping strips arranged stepwise, and side-angle pieces both at the head and at the inner overlapping surfaces of the tile.

NEW APPLICATIONS FOR LETTERS PATENT.

DECEMBER 27.—24,831, H. De Forest, Glazing—24,843, R. Kirlew, Ventilating Flues and Chimney Shafts.

DECEMBER 28.—24,915, J. Lumley and I. Linskill, Window Frames and Reversible Self-balancing or other Sliding Sashes.—24,936, F. Jones, Connecting Lead or Soil-pipes to Earthenware Drains. — 24,965, A. Viale, Closets.

DECEMBER 29.—24,966, C. Campbell, Smoke Generators for Testing Drains.—25,027, C. Liney, Drain-pipes, &c.

DECEMBER 30.—25,037, T. Downie, Window Sashes.—25,044, A. Barr, Device for Locking or Gripping the Weight-cords of Hinged Windows, &c.—25,070, A. Boult, Manufacture of Cement.

PROVISIONAL SPECIFICATIONS ACCEPTED.

20,741, J. Lea and others, Swing or Movable Joints, especially adapted for Electric Light Fittings.—20,801, J. & W. Horsfall, a Window-draught Excluder, Burglar-proof, and Prevention of the Window or Windows Rattling in Stormy Weather.—22,989, E. Ingram, Wood-paving.—23,018, L. King, Wood, Tile, and Panel.—23,356, J. Brown and D. Simpson, Window-Sashes.—23,486, A. Pearse, Window Fittings to enable the Sashes to be lowered or raised and kept in position without sash lines or Pulleys.—24,061, E. Kent and H. Besson, Painting Brushes.—24,112, R. Yates, Construction of Breakwaters, Sea-walls, Piers, Quays, and similar Structures.—24,201, C. Brindley, Preventing Water-pipes Bursting by Frost.—24,236, W. Peyton, Stove or Fire-grate.

COMPLETE SPECIFICATIONS ACCEPTED.

(Open to Opposition for Two Months.)

3,283, W. Davis, Tops or Cowls for Chimneys, Ventilating Shafts, &c.—16,703, J. Walton, White Lead.—21,300, J. Dunn, Gravity Button or Hasp for Securing Cupboard or other Doors.—22,580, A. Jewers, Window Fasteners, &c.—22,781, W. Allen, Water-closets or Water-closet Basins.—23,024, J. Neal, Handle for Tools.

PRICES CURRENT OF MATERIALS.

TIMBER.

Greenheart, B.G.	ton	9/0/0 0/0/0
Teak, E.I.	load	9/10/0 15/10/0
Sequoia, U.S.ft.cu		2/3 2/6
Ash, Canada	load	2/10/0 3/15/0
Birch, do.		2/10/0 3 10 0
Elm, do.		3/5/0 4/10/0
Fir, Dantsic, &c.		1/5/0 2/10/0
Oak, do.		2/15/0 5/0/0
Canada		5/10/0 7/0/0
Pine, Canada red		2/15/0 3/5/0
Do. Yellow		2/5/0 4/10/0
Lath, Dantsic, fath		4/10/0 5/10/0
St. Petersburg		5/0/0 6/10,0
Wainscot, Riga, &c., log		2/5/0 4/10/0
Odessa, crown		2/5/0 4.10,0
Deals, Finland 2nd & 1st std	100	8/0/0 10/10/0
Do. 4th & 3rd		7/10/0 8/0/0
Do. Riga		7/10/0 9/0/0
St. Petersburg, 1st yellow		10/0/0 13/10/0
Do. 2nd yellow		8/0/0 9/0/0
Do. white		8/10/0 11/0,0
Swedish		8/0/0 16,0/0
White Sea		8/0/0 16/10/0
Canada, Pine 1st		22/10,0 29/10/0
Do. do. 2nd		17/0/0 18/10/0
Do. do. 3rd, &c.		7/10/0 10/10/0
Do. Spruce, 1st		9 0/0 11/0/0
Do. do. 3rd & 2nd		6/10/0 7'15/0
New Brunswick		6/0/0 7/5 0
Battens, all kinds		3/0/0 15/0,0
Flooring boards, sq., 1 in. prep, 1st		0/10/6 0/15/0
Do. 2nd		0/7/6 0/13/0
Other qualities—		0 5/3 0/7,0
Cedar, Cuba	ft.	/4 /4½
Honduras, &c.		/3½ /4½
Mahogany, Cuba		/3½ /6
St. Domingo, cargo av.		/3 1/6
Mexican do. do.		/3½ /4
Tobasco do. do.		/3½ /6
Honduras do.		/4 /5½
Box, Turkey	ton	4/0/0 13/0/0
Rose, Rio		8/0/0 20/0/0
Bahia		7/0/0 18/0/0
Satin, St. Domingo		0/0/6 0/1/3

TIMBER (*continued*).

Satin, Porto Rico		0/0/7 0/1/6
Walnut, Italian		0/0/31 0/0/7

METALS.

Iron—Pig, in Scotland	ton	2/2/11½ 0/0/0
Bar, Welsh, in London		5/17/6 6/0/0
Do. do. at works in Wales		5/7/6 5/10/0
Do. Staffordshire, in London		6/0/0 6/10/0
COPPER—British cake and ingot		44/15/0 45/5/0
Best selected		45/10/0 46.0/0
Sheets, strong		53/10/0 0/0/0
Chili. bars		42/5/0 42/10/0
YELLOW METAL	lb	0/0/4¾ 0/0/5
LEAD—Pig, Spanish	ton	9/7/6 9/10/0
English com. brands		9/10/0 9/12/6
Sheet, English, 6 lbs. per sq. ft. and upwards		11/5/0 0/0/0
Pipe		11/15/0 0/0/0
ZINC—English sheet	ton	20/10/0 0/0/0
Vieille Montagne		21/0/0 0/0/0
TIN—Straits		71/17/6 72/7/6
Australian		72/2/6 72/12/6
English Ingots		77/10/0 78/0/0
Banca		78/0/0 79/0/0
Billiton		74/0/0 75/0/0

OILS.

Linseed	ton	20/2/6 20/7/6
Cocoanut, Cochin		34/0/0 0/0/0
Do. Ceylon		25/10/0 0/0/0
Palm, Lagos		25 0/0 0/0/0
Rapeseed, English pale		22/15/0 23/5/0
Do. brown		21/0/0 21/5/0
Cottonseed ref.		21 0/0 21/15/0
Oleine		22/0/0 24/0/0
Lubricating, U.S.		4/0/0 5/0/0
Do. refined		5/0/0 12/0/0
TAR—Stockholm	barrel	0/18/6 0/0/0
Archangel		0/12/6 0/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.*]

ALNWICK.—For the completion, &c., of the roadway, footways, &c., of Bridge-street, at Wagon Way, for the Alnwick and Canongate Local Board. Mr. Geoffrey Wilson, C.E., Local Board Offices, Green Bat, Alnwick. Approximate quantities by Mr. G. Wilson, Town Surveyor:—

Thos. Atkinson	£372 0 0	Wm. Weatheritt	£287 1 0
W. Thompson, jr.	315 0 0	John Whinham, Alnwick (accepted)	285 10 0
T. & M. Appleby	289 9 10		

[Town Surveyor's Estimate, £320 0 0.]

ALNWICK.—For repaving a portion of Narrowgate-street. Mr. G. Wilson, Town Surveyor:—

	Alternative tenders.	
Jas. Tait	£164 10 0 or	£198 17 6
W. S. Kearton	161 9 0 or	196 17 0
W. Thompson, junr.	177 12 0	—
T. & M. Appleby, Embleton*	154 11 8 or	191 5 0*

* Accepted.

[Town Surveyor's estimates, £150 and £200.]

BOURNEMOUTH.—For making up Avon-road, for the Bournemouth Corporation. Mr. F. W. Lacey, Borough Engineer:—

Asphaltic Limestone Concrete Co., Limited	£141 13 3
George Troke	139 11 9
W. H. Saunders & Co. (accepted)	123 5 6

[Surveyor's estimate, £177.]

Tar-paving.

Asphaltic Limestone Concrete Co., Limited	£131 8 2
Josiah Smart (accepted)	128 10 8½

[Surveyor's estimate, £138.]

BRISTOL.—For the construction of branch sewers, Cloud's Hill-road, &c., St. George, for the Urban Sanitary Authority. Mr. T. L. Lewis, engineer, Parochial Offices, St. George, Bristol. Quantities by the engineer:—

	Secs. 1, 2, 3.	Secs. 4, 5.	Complete.
Mitchell & Thomson	—	—	£4,713 0 10
Lloyd & Powell	—	—	2,756 15 0
Fredk. Martin	—	—	2,738 6 0
Thomas & Webb	—	£632 18 6*	2,032 16 6
George Jones	£1,350 15 6*	—	2,021 5 3

* Accepted.

[Engineer's estimate, £2,300.]

CARDIFF.—Accepted for additions, &c., to shops, Windsor-road, Penarth, for Messrs. Nurton & Fennell. Mr. Havelock Cornish, architect, 43, Windsor-road, Penarth:—

M. H. Tape, Windsor-road, Penarth £344 10 0

CARDIFF.—For forming, pitching, paving, &c., Llanfair-road, and Barracks-lane (2 contracts), for the Corporation:—

Llanfair-road.

Foyatt, Richards, & Co	£454 12 9	James Rich	353 10 6
F. Ashley	445 10 9	Ellis & Davies, Cardiff*	347 19 11
Best & Co.	394 12 1		

* Accepted.

Barracks-lane contract not let.

DOWNPATRICK.—Accepted for the erection of urinals, water-closets, drainage, and stable, at the Stand House Racecourse, for the County Down Hunt Steeplechase Committee. Mr. J. W. Bassett, surveyor, Downpatrick:—

J. & T. Stockdale, Downpatrick £167 0 0

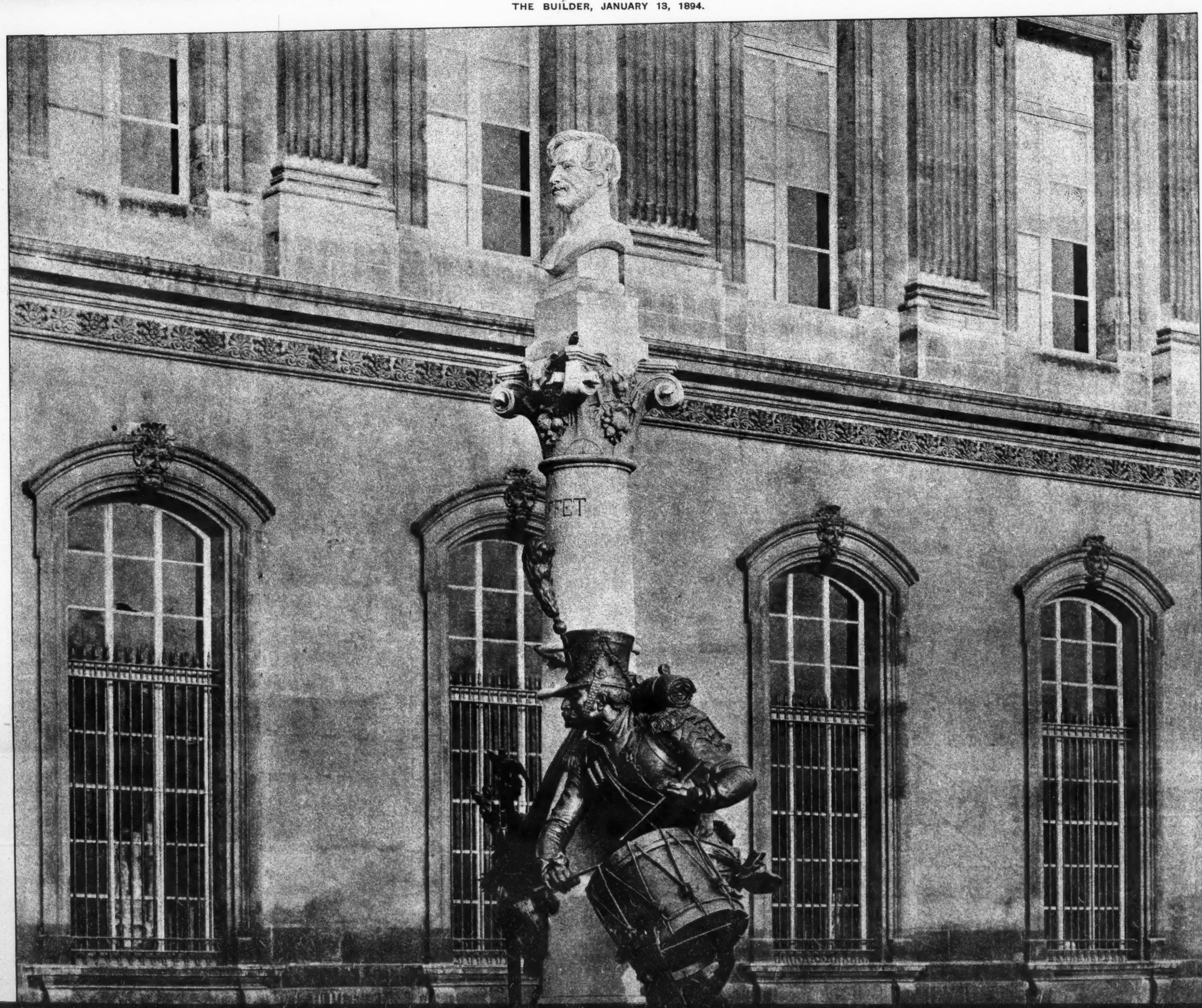
HARROGATE.—Accepted for the new Montpellier Baths, Harrogate. Mr. S. Stead, Borough Surveyor:—

Bricklayer, Excavator, and Mason, and Carpenter and Joiner.—Isaac Gould, Hunslet, Leeds	£46,500 0 0
Plumber and Glaziers and Smith and Ironfounder.—H. Braithwaite & Co., Swiregate, Leeds	14,600 0 0
Plasterers.—S. Johnson & Son, Mirfield	1,627 8 5
Painters.—J. T. Pollard & Son, 66, Albion-street, Leeds	1,326 0 0
Slater.—J. Shepherd, Harrogate	747 3 0
Total	£64,701 1 5

HOYLAKE (Cheshire).—For the erection of the first section of offices, fire-station, and technical school, for the Hoylake Local Board. Mr. Thomas W. Cubbon, architect, 54, Hamilton-street, Birkenhead:—

W. H. Bleakley & Co.	£1,165 0 0	Raffle & Campbell	£1,028 0 0
John Shaw	1,109 0 0	Thomas Lee	988 7 6
Brown & Backhouse	1,088 0 0	W. W. Christian	984 1 2
Holme & Green	1,069 10 0	W. H. Ford	978 0 0
Hughes & Stirling	1,065 0 0	T. F. Hill & Co., Woolton, near Liverpool*	936 0 0
James Merritt	1,063 0 0		
Smith Bros.	1,040 0 0		

* Accepted.



LONDON.—For steel and iron-work in girders, joists, roof-trusses, columns, &c., to the new baths and washhouses, Tibberton-square, London, N., for the Baths and Washhouse Commissioners, for the parish of St. Mary's, Islington. Mr. A. Hessell Tiltman, architect, 79, Torrington-square.

Dorman & Long	£2,708	18	2
R. Moreland & Sons	2,557	10	0
H. Lindsay, Neale, & Co.	2,541	14	7
A. Dawnay	£2,420	15	7
Matt Shaw, & Co.*	2,396	10	5

*Accepted.

Three New Steel Lancashire Boilers.

E. Galloway	£2,145	0	0
A. Anderton & Sons	2,090	0	0
Spurr, Inman, & Co.	2,023	7	6
The Leeds Boiler Co.	£1,987	0	0
Robert Taylor & Sons*	1,800	0	0

*Accepted.

Engineering Works.

Including wash-house, metals, drying-closets, engines, laundry, and other machinery and piping for heating and warming generally:—

	£	s.	d.	A. £	s.	d.	B. £	s.	d.
Tylor & Sons	8,657	18	0	350	0	0	40	0	0
Harper Twelvetrees	8,201	12	2	180	0	0	700	0	0
Sugg & Co.	8,068	17	6	150	0	0	560	0	0
Summerscales & Sons	7,898	0	0	272	0	0	228	0	0
Wenham & Waters	7,490	0	0	101	12	6	105	0	0
Rosser & Russell	7,298	0	0	180	0	0	500	0	0
John Fraser & Sons	7,240	0	0	116	0	0	115	0	0
Benham & Sons	7,186	10	0	202	10	0	159	5	0
Purcell & Nobbs	6,829	0	0	340	0	0	435	0	0
L. D. Berry & Sons	6,689	0	0	—			349	0	0
T. Bradford & Co.	6,502	0	0	116	12	0	—		
Russell & Co.	6,480	0	0	210	0	0	100	0	0
J. & F. May	6,165	0	0	88	10	0	93	6	8
J. F. Clarke & Sons	5,706	0	0	115	0	0	307	0	0
Murdock & Cameron*	5,531	0	0	193	10	0	170	0	0

A.—Extra if wash-house metals and troughs are bower barffd.
B.—Extra if wash-house metals and troughs are enamelled.
* Accepted.

LONDON. — For new premises, Brewery-road, N. Mr. W. Egerton, architect, Erith, Kent:—

Mowlem & Co.	£7,742	Gregor & Son	£7,190
Holliday & Greenwood	7,597	Kirk & Randall	7,164
Houghton & Son	7,492	J. O. Richardson	6,529
Williams & Son	7,429	Batley, Son, & Holmes	6,524

LONDON.—For the construction of Turkish baths at Broad-street House, Old Broad-street, E.C., for Messrs. J. & H. Nevill. Mr. G. Harold Elphick, architect, Broad-street House. Quantities by Messrs. Batstone Bros., 120, Cannon-street, E.C.:—

Paramor & Sons	£5,750	0	
Kirk & Randall	5,655	0	
Stanley Bird	5,517	0	
H. Lovatt	5,091	0	
W. H. Lascelles & Co.	5,024	0	
Macfarlane Bros.	£5,020	0	
Woodward & Co.	4,840	0	
Colls & Sons	4,731	10	
William Downs*	4,670	0	

*Accepted.

LONDON.—For alterations to premises, 208-212, Upper-street, Islington, N., for W. H. Rackstraw. Mr. F. Taperell, architect, 9 John-street, Adelphi, W.C.:—

Goodman & Son	£2,397	Houghton & Sons	£2,167
Williams & Son	2,213	McCormick & Son	2,088
Dearing & Son	2,200	McFarlane Bros.	2,085
Chessum & Sons	2,172		

LONDON.—For alterations to shop-front and fittings, &c., to No. 16, Cornhill. Messrs. Wadmore, Wadmore, & Mallett, architects, 35, Great St. Helens, E.C.:—

Clarke & Bracey	£1,499	0	
F. Sage & Co.	1,365	15	
W. H. Lascelles & Co.	1,145	0	
Scrivener & Co.	£1,125	0	
Drew & Cadman*	1,106	0	
Ashby Bros.	995	0	

* Accepted.

LONDON.—For alterations to No. 62, Fenchurch-street, for the Aërated Bread Company. Mr. G. Edwards, architect:—

Martin Wells & Co.	£1,248	13	
Colls & Son	1,125	0	
S. Knight	1,125	0	
C. Wall	1,093	0	
Scharien & Co.	£1,083	8	
Ward & Lamble	1,037	0	
T. Stevens	997	0	
Stimpson & Co.	995	0	

LONDON.—For fitting up a dairy shop, at new premises in course of erection at North Finchley, for Mr. J. W. Lane, of Manor Farm, Highgate. Mr. F. W. Lane, architect, 152, Albion-road, Stoke Newington, N.:—

Drew & Cadman	£477	Sage & Co.	£448
Godfrey Giles & Co.	469	F. Voller (accepted)	397
Lascelles & Co.	457		

NEWCASTLE-ON-TYNE.—For the erection of the "Burt" hall and offices, Northumberland-road, for the Northumberland Miners' Association. Mr. Jno. W. Dyson, architect, 18, Grainger-street, Newcastle-on-Tyne. Quantities by the architect:—

Buildings.

W. C. Tyrie	£6,552	2	0
J. & W. Lowry	6,376	14	0
Middlemiss Bros.	6,271	18	0
Thos. Weatherilt	6,071	3	7
John Ferguson	£5,612	0	0
S. B. Burton, Newcastle*	5,422	16	8

*Accepted.

Plumbing.

A. Scott	£535	4	5
J. T. Hobson	532	16	7
Threlkeld & Wallace	532	11	9
H. Walker & Son, Ltd.	475	17	2
M. Gibson	£474	5	6
Stephen Percy, Newcastle*	468	12	10

*Accepted.

PAIGNTON (Devon). — For new vicarage, Christ Church, Paignton. Messrs. G. Soudon Bridgman & Norman G. Bridgman, architects, Torquay and Paignton:—

W. A. Goss	£1,811	E. P. Bovey	£1,620
R. Yeo	1,775	E. Westlake	1,612
Rabbich & Brown	1,647	Drew Bros.	1,599
G. Webber & Maunder	1,622	H. Webber & Son	1,597

PORTSMOUTH. — For additions, &c., to school buildings, Penhale-road, for the School Board. Mr. Alfred H. Bone, architect, Cambridge Junction, Portsmouth. Quantities by architect:—

T. W. Quick	£11,500	0	0
E. A. Knight	11,385	16	2
W. W. Learmouth	10,800	0	0
H. Willcox & Co.	9,995	0	0
J. W. Perkins	9,970	0	0
E. & A. Sprigings	£9,960	0	0
T. P. Hall	9,900	0	0
J. Biden	9,897	0	0
H. Jones, Portsmouth (accepted)	9,782	0	0

SANDWICH. — For the erection of reservoir engine-house, cottage, and providing and laying pipes and fittings, for the Corporation. Messrs. Easton & Anderson, engineers, 3, Whitehall-place, S.W.:—

Contract No. 3 (pipes, &c.).

A. Osborne & Co.	£3,731	0	0
D. W. Forbes & Co.	3,530	0	0
J. F. Cullen	3,158	9	0
B. Cooke & Co.	2,975	0	0
W. Coker	2,936	2	0
T. V. Bond	£2,925	0	0
H. Roberts, Smethwick (accepted)	2,629	9	9
W. Meats	2,590	0	0
L. H. Green	2,498	8	6

Contract No. 4 (buildings).

A. Osborne & Co.	£2,423	14	9
B. Cooke & Co.	2,285	0	0
W. Coker	2,137	6	3
H. Roberts, Smethwick*	£1,969	9	9

* Accepted.

SOUTHEND.—For levelling, channelling, paving, &c., Hartington-road, for the Corporation. Mr. C. T. Copley, Borough Surveyor, Clarence-road, Southend:—

Bensted & Lake	£504	2	0
W. Griffiths	610	15	1
F. Dupont	605	17	1
W. Buxton	£602	7	4
E. Iles	559	0	3

TORQUAY.—For new banking premises for the Devon and Cornwall Banking Company, Limited. Messrs. G. Soudon Bridgman and Norman G. Bridgman, architects, Torquay and Paignton:—

J. Finch	£4,090	0	
C. & R. E. Drew	3,643	0	
E. Westlake	3,595	0	
H. Webber	3,578	0	
J. Chubb	3,179	8	
E. P. Bovey	£3,166	15	
J. Smerdon	3,098	10	
Rabbich & Brown*	3,036	0	
Vanstone & Mumford, Torquay (accepted)	2,995	6	

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218 and 220, High-street, Borough, S.E.

6 and 8, Hatton Garden.

47 and 49, St. Enoch-square.

VIEILLE MONTAGNE SOLE MANUFACTURING AGENTS.

NO SOLDER. NO EXTERNAL FASTENINGS.

Particulars on Application. *Chief Offices: Fitzroy Works, EUSTON ROAD, LONDON, N.W.*

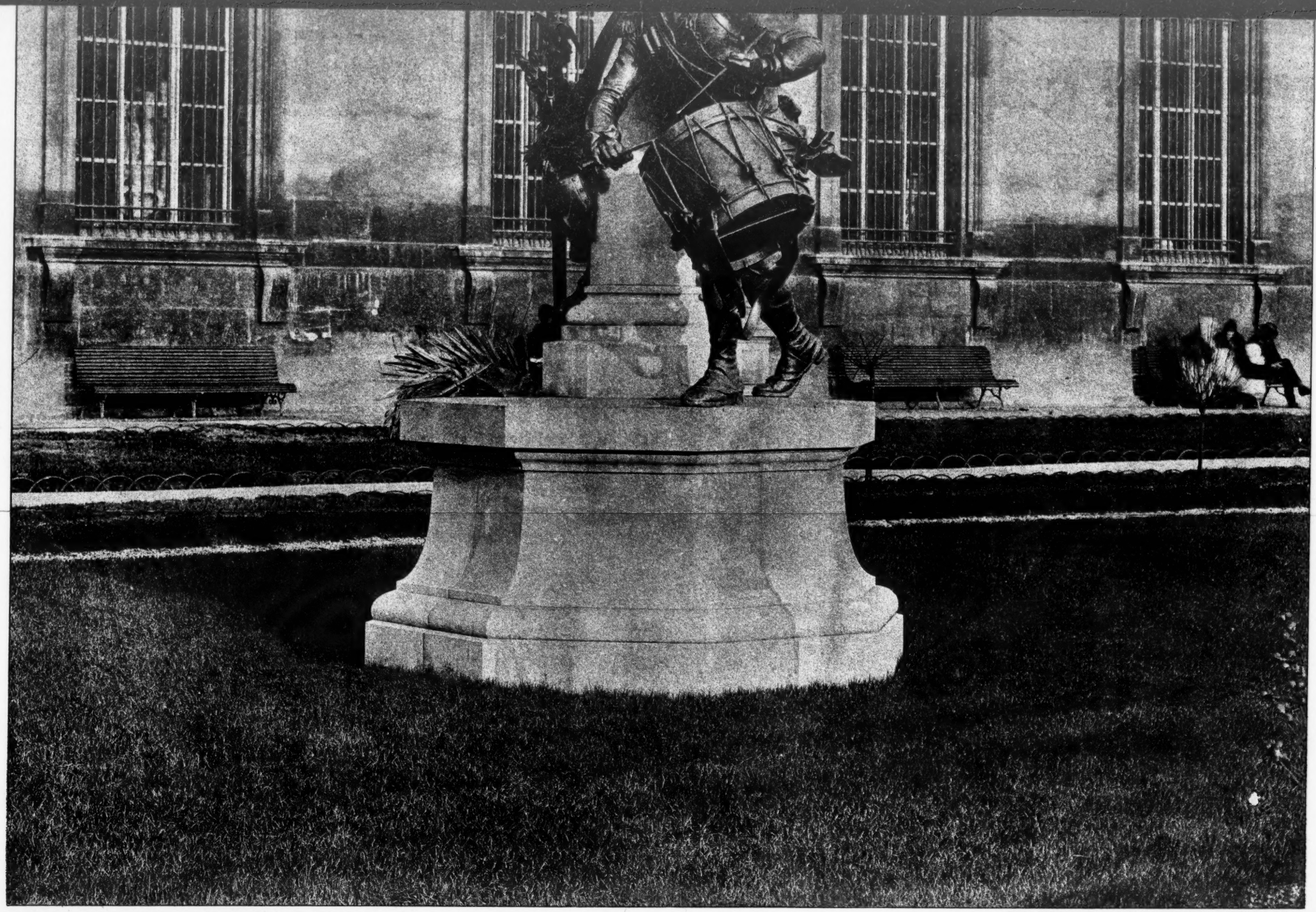
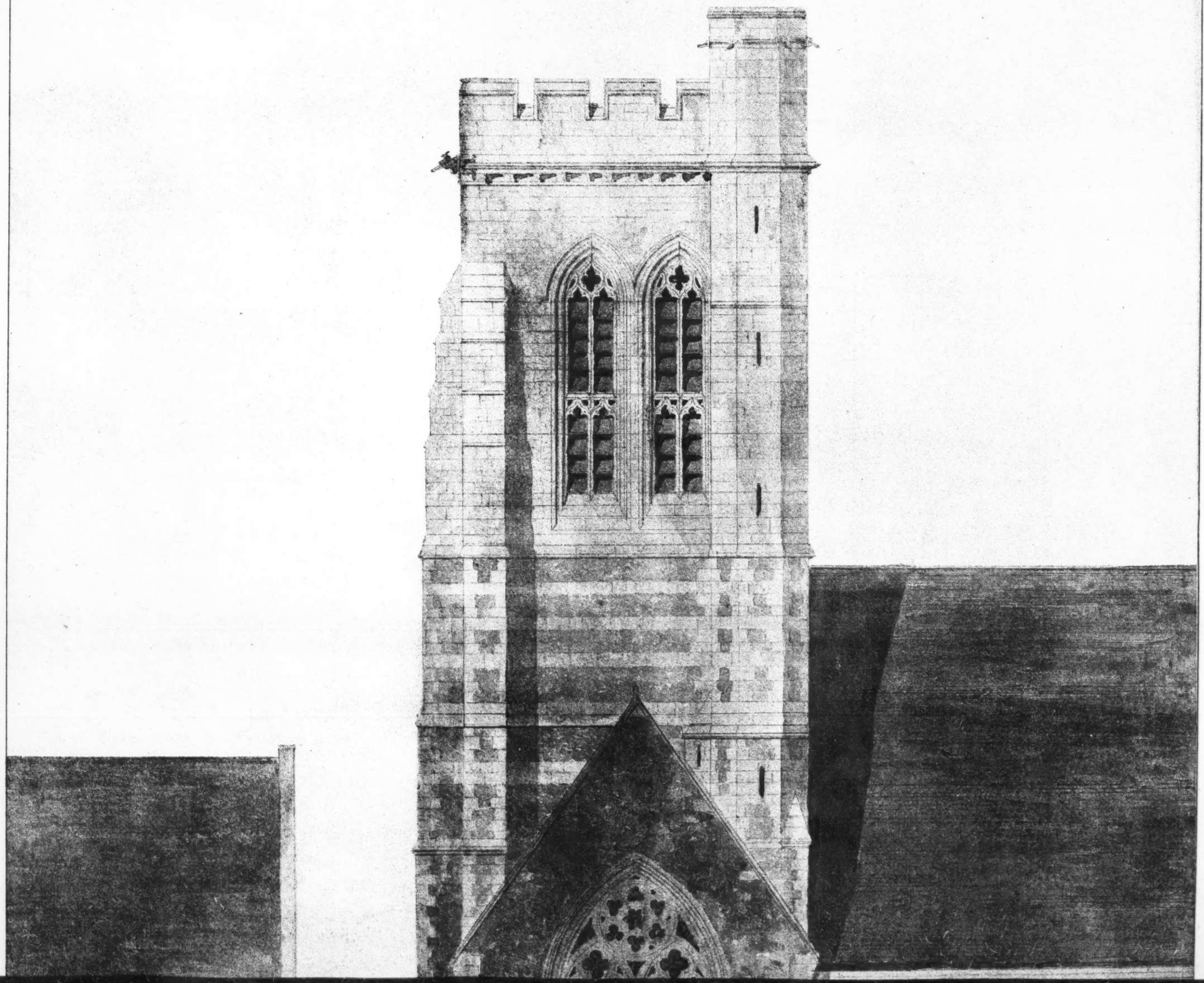
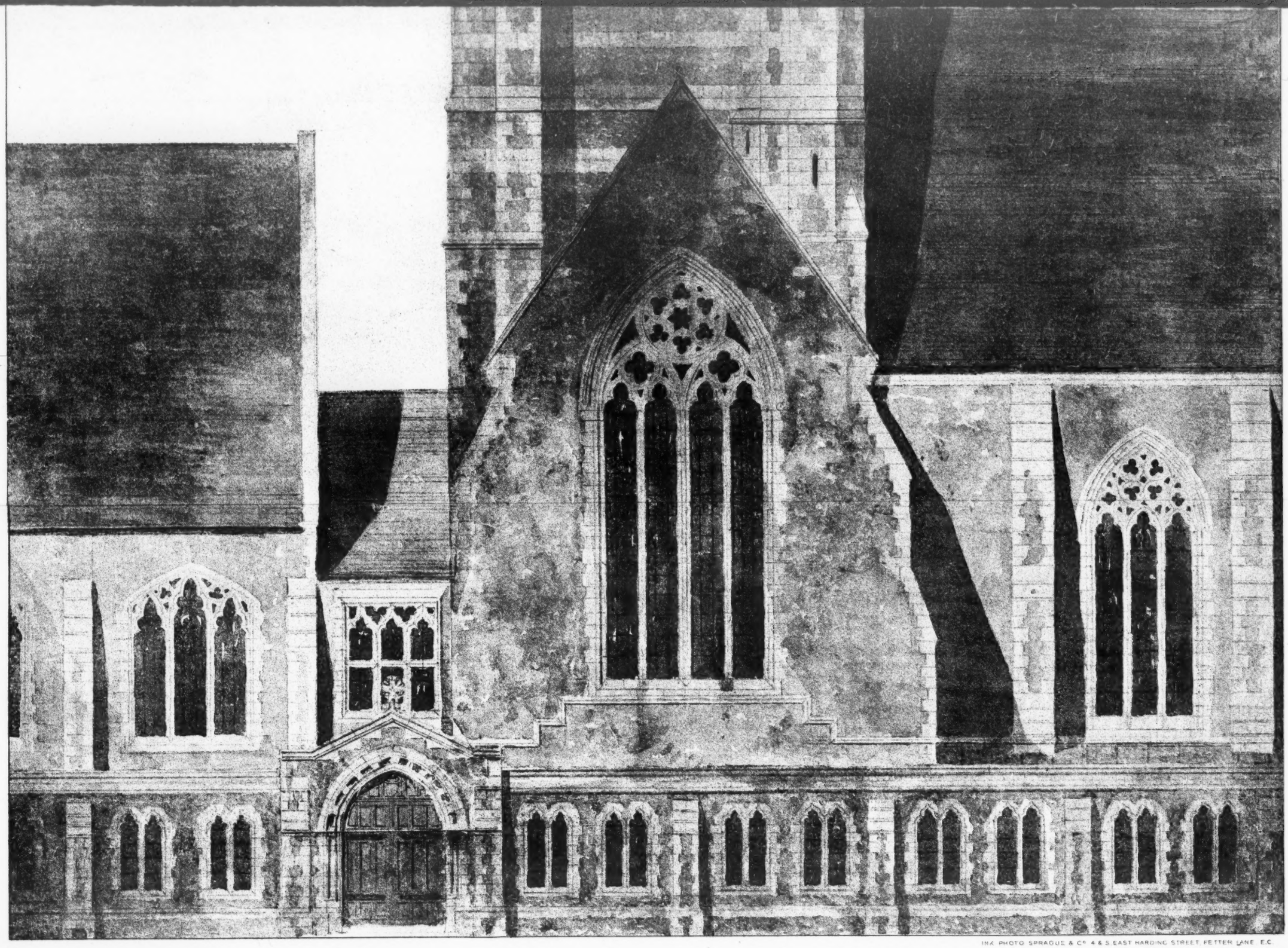


PHOTO SPRAGUE & Cº 4 & 5 EAST HARDING STREET FETTER LANE E.C.

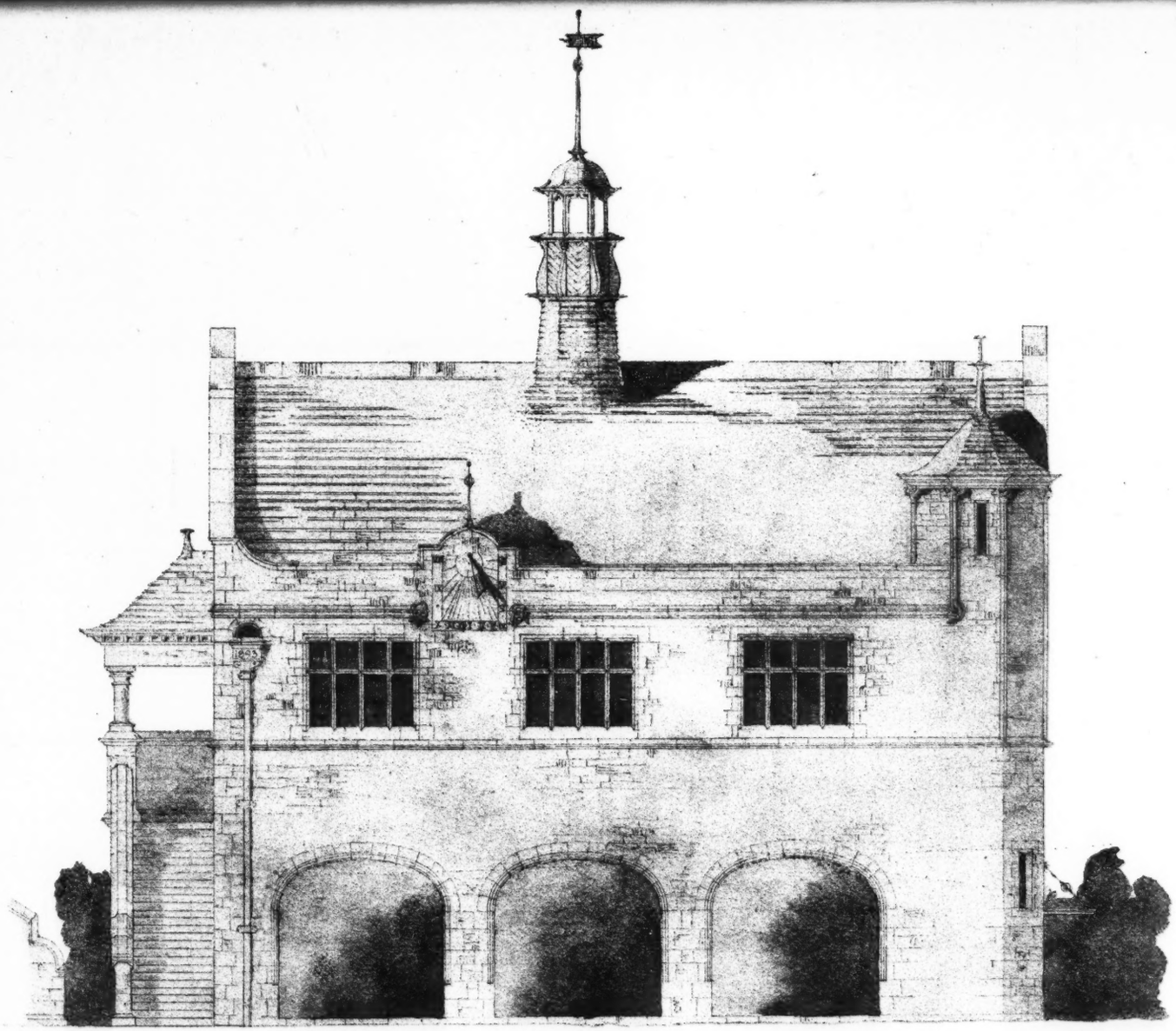
MONUMENT TO RAFFET, THE MILITARY PAINTER, RECENTLY ERECTED AT PARIS.—M. Frémiet, Sculptor.





INK PHOTO SPRAGUE & Co 4 & 5 EAST HARDING STREET FETTER LANE E.C.

ST. JOHN'S COLLEGE CHAPEL, HURSTPIERPOINT (THE TOWER AND ANTE-CHAPEL).—Messrs. Carpenter & Ingelow, Architects.

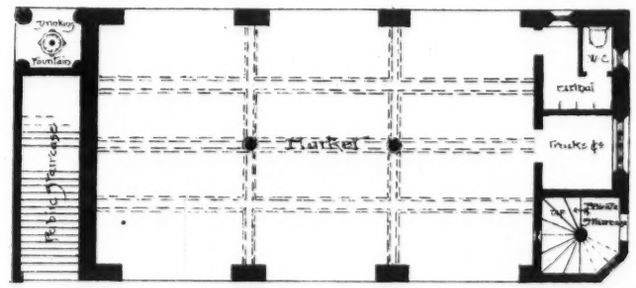


Elevation

H. Seton Morris
26.5.93

Scale of 10 5 0 10 20 30 40 feet

First Floor Plan



Ground Floor Plan

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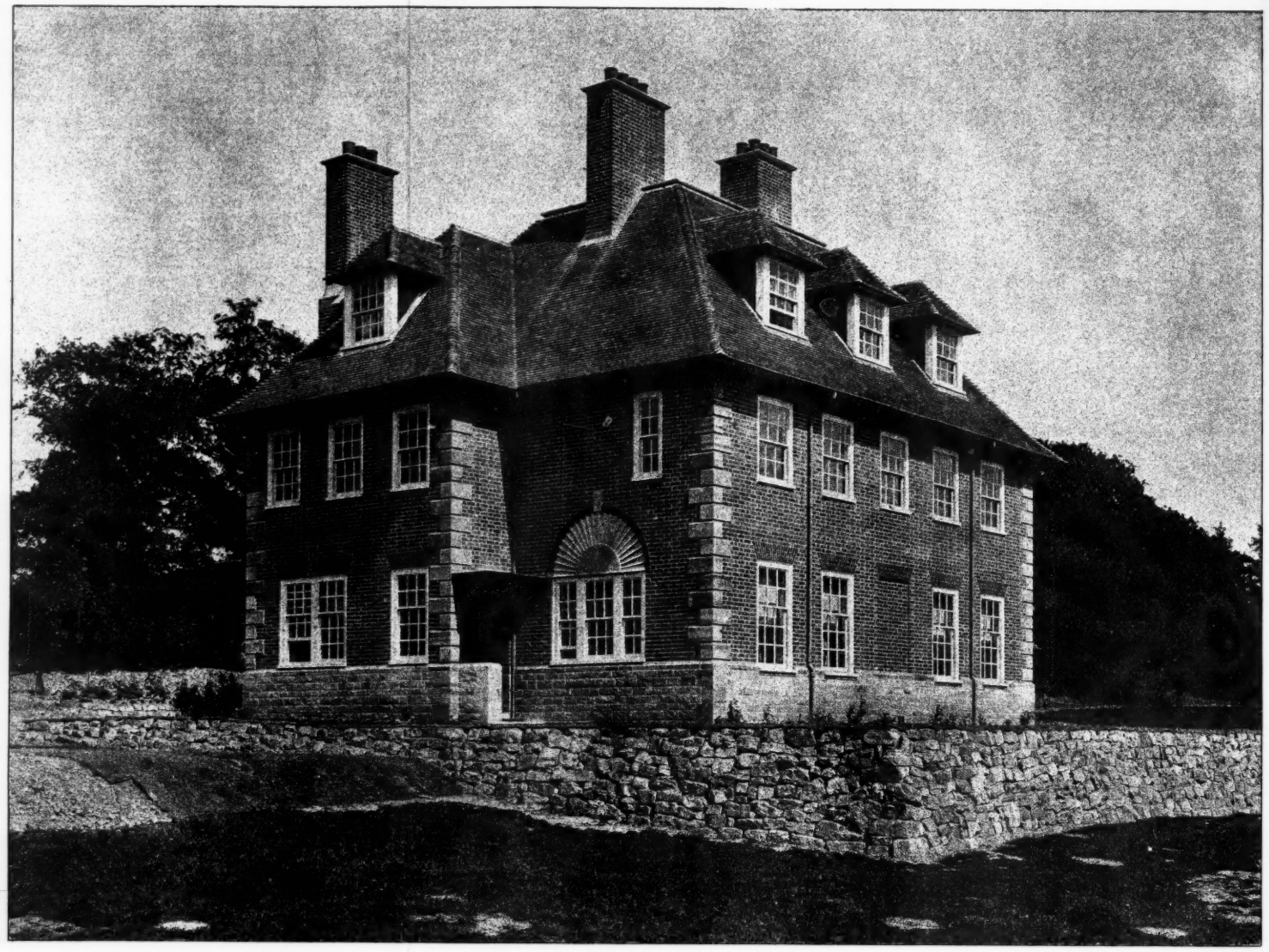
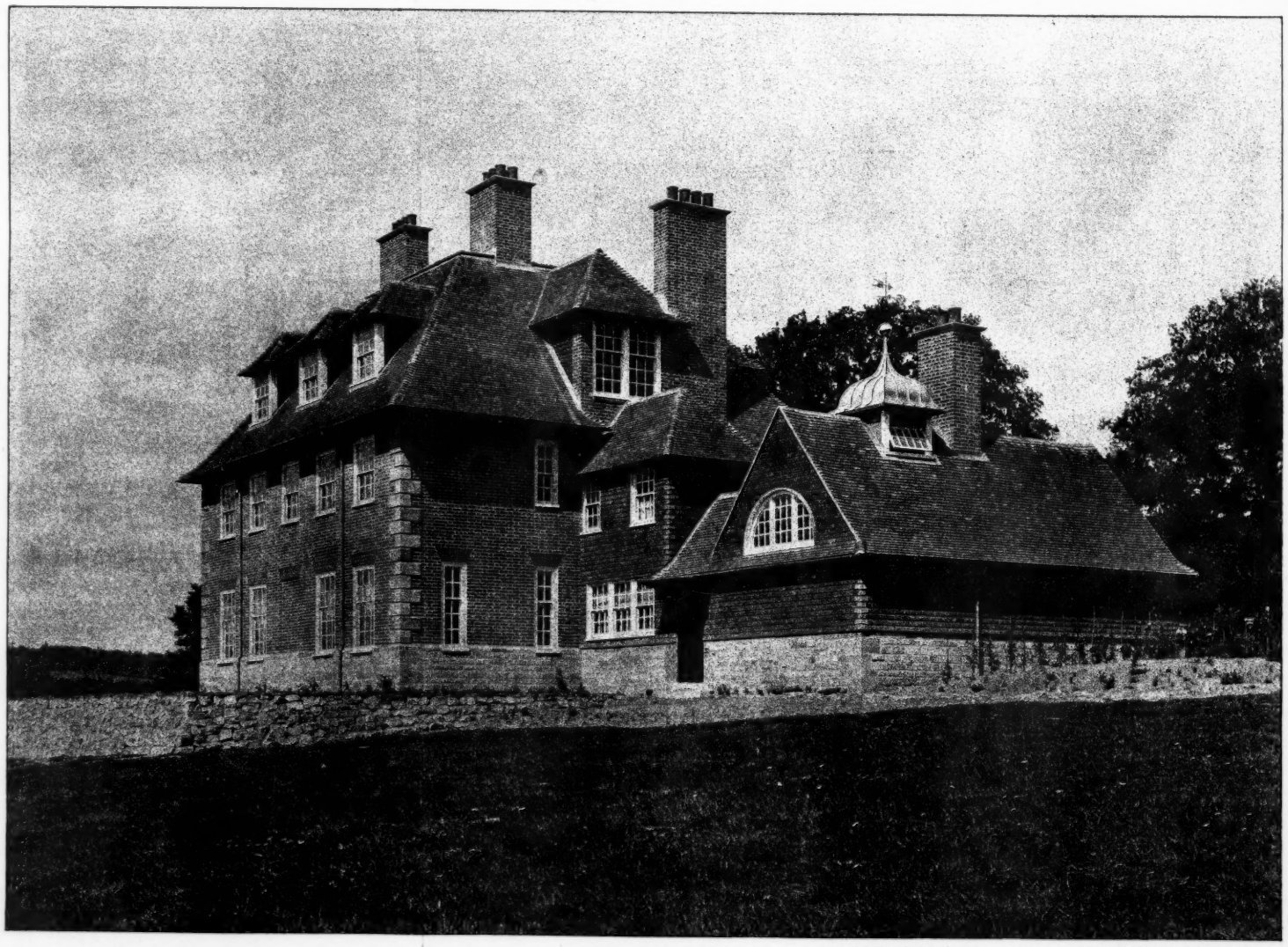
SKETCH DESIGN FOR A SMALL MARKET HALL (CLASS-WORK DESIGN IN THE ARCHITECTURAL SCHOOL AT THE ROYAL ACADEMY).

By Mr. H. Seton Morris.



SOUTH-WEST VIEW.



SOUTH-EAST VIEW.

INK PHOTO SPRAGUE & Co 4 & 5 EAST HARDING STREET FETTER LANE E.C.

"HILL SIDE," SUSSEX.—Mr. Reginald Blomfield, M.A., Architect.

SKETCH DESIGN FOR A SMALL MARKET HALL (CLASS-WORK DESIGN IN THE ARCHITECTURAL SCHOOL AT THE ROYAL ACADEMY).
By Mr. H. Seton Morris.

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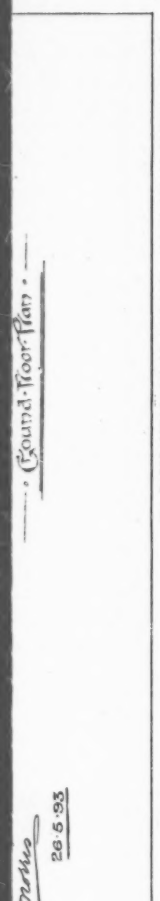
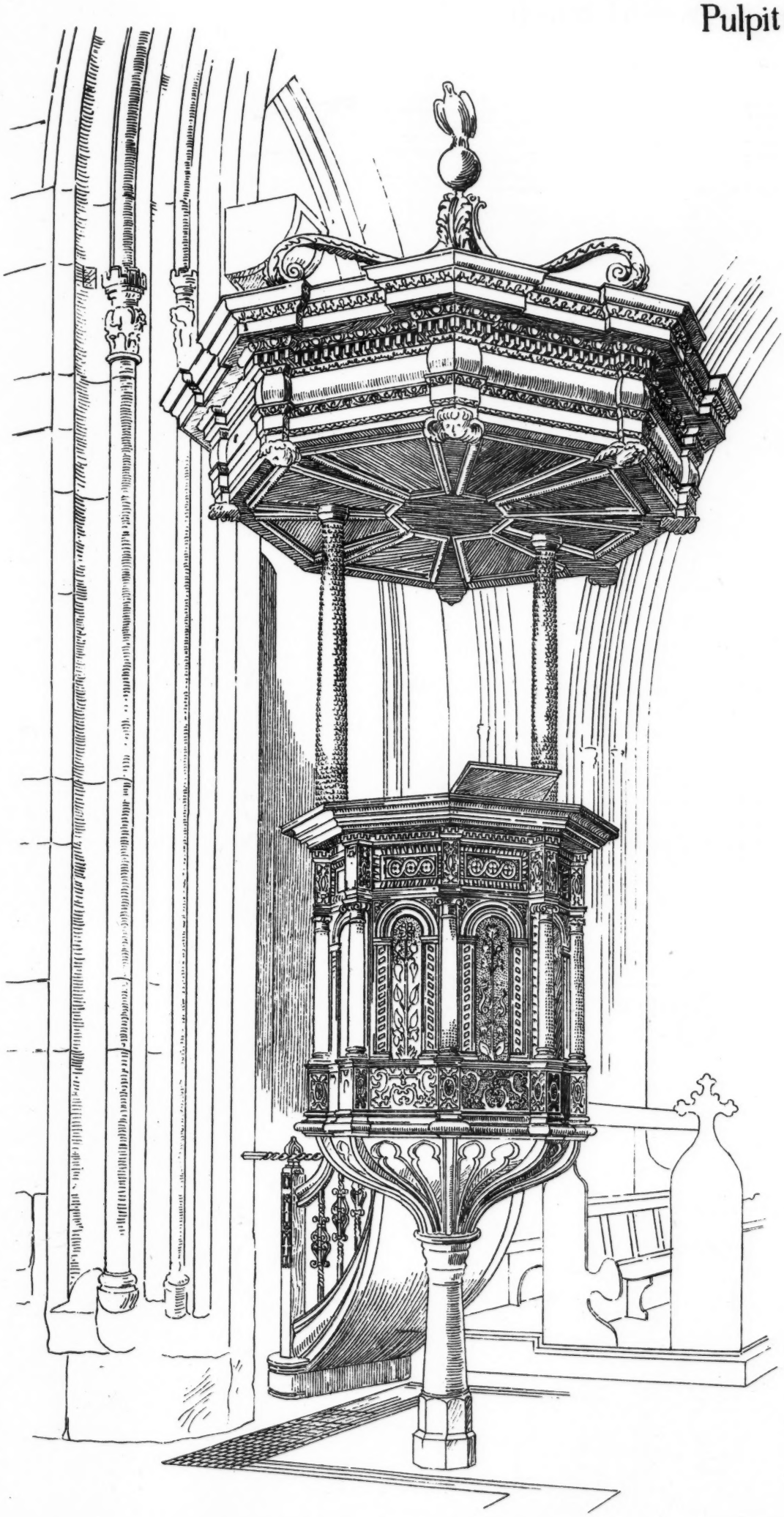
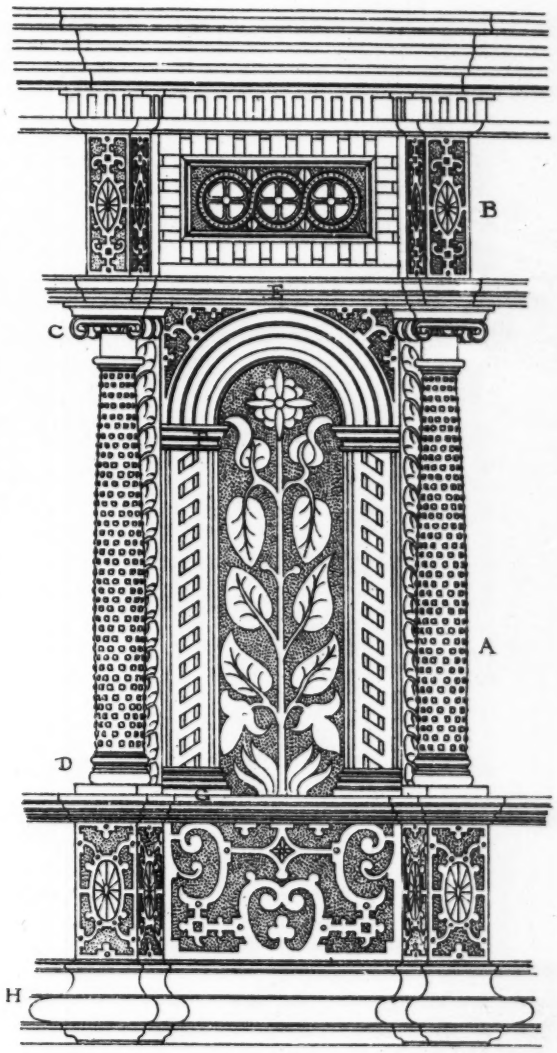


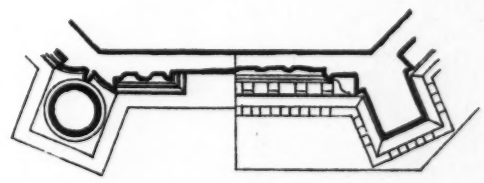
Pulpit in Rotherham Parish Church



drawn by H.L.Paterson
1893

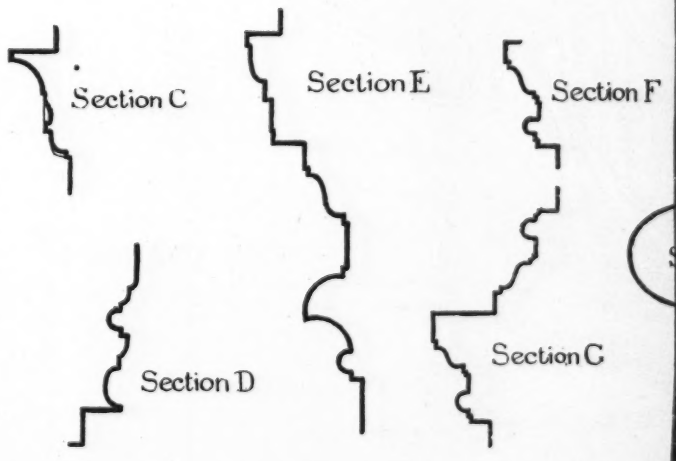


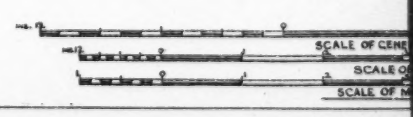
Elevation of Front



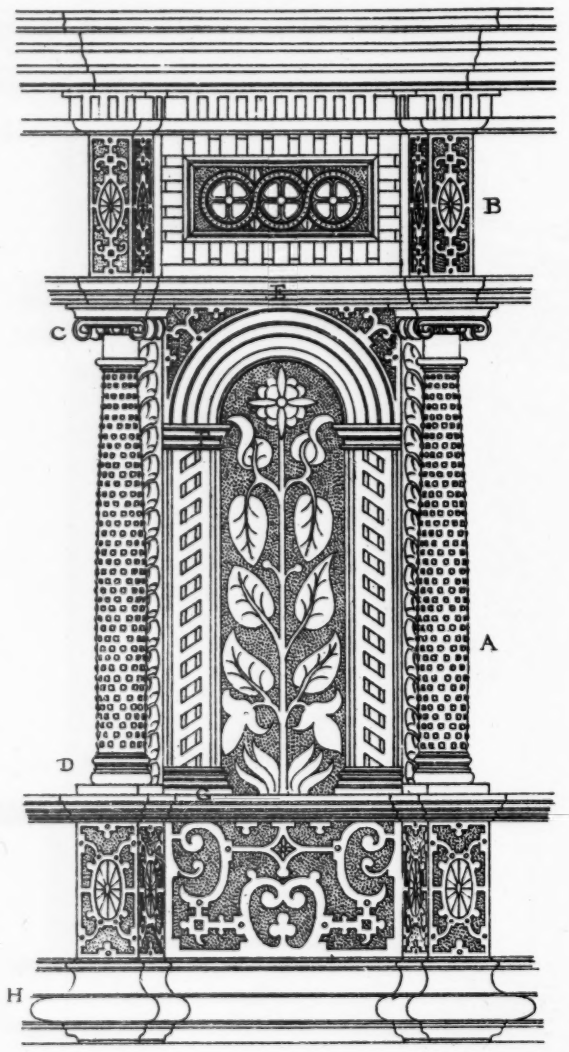
Plan at A

Plan at B
looking up

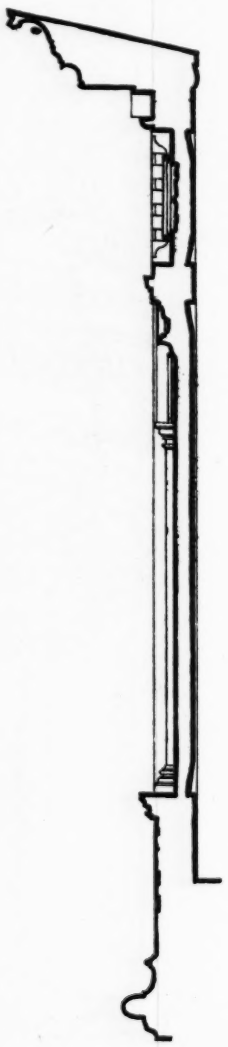




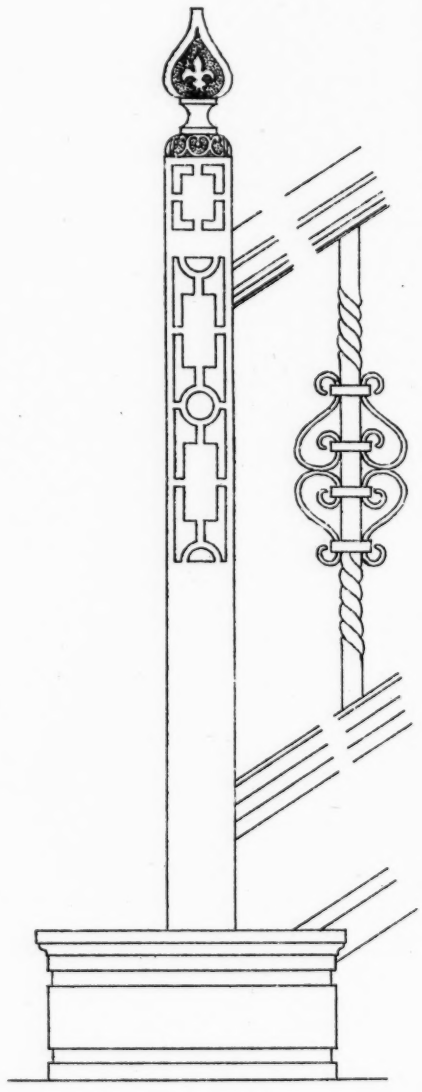
otherham Parish Church



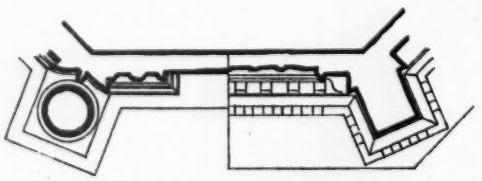
Elevation of Front



Section of Front

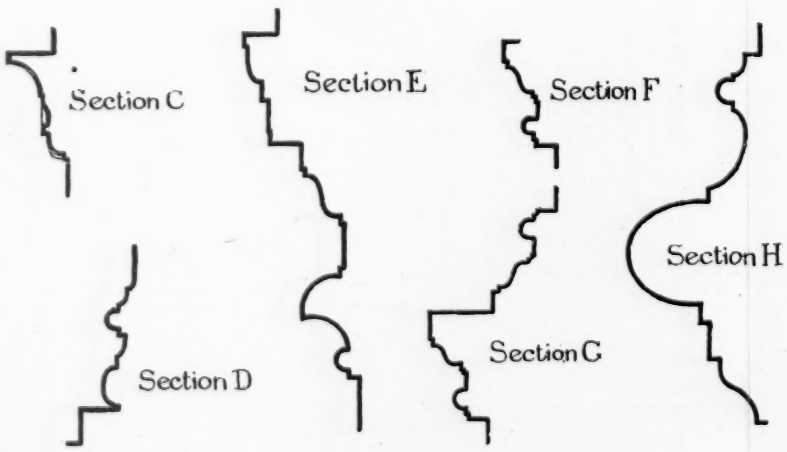


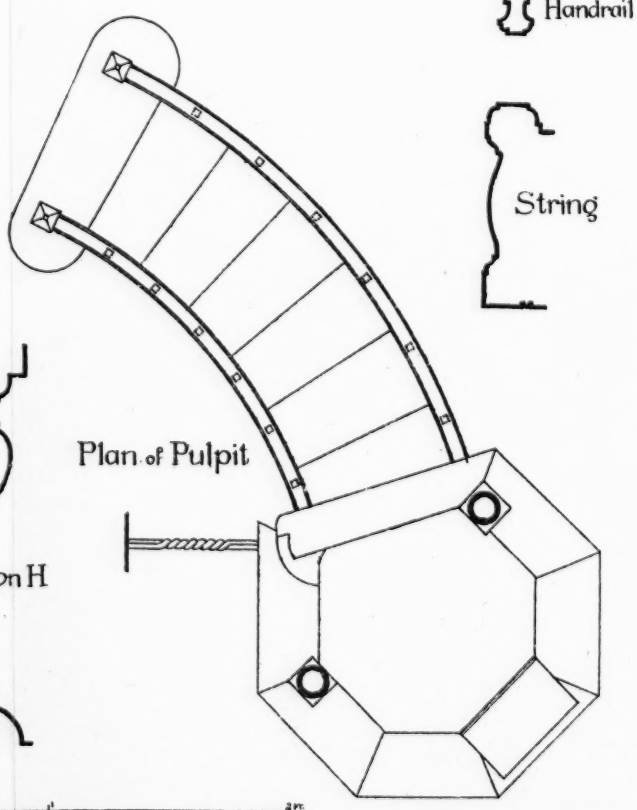
Details of Stair



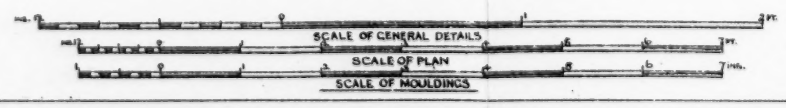
Plan at A

Plan at B
looking up





Plan of Pulpit



measured and drawn by
H L Paterson 1893

PHOTO-LITHO. SPRAGUE & Co 4 & 5 EAST HARDING STREET FETTER LANE E.C.